ORDER NO. MD9205019C8

Service Manual

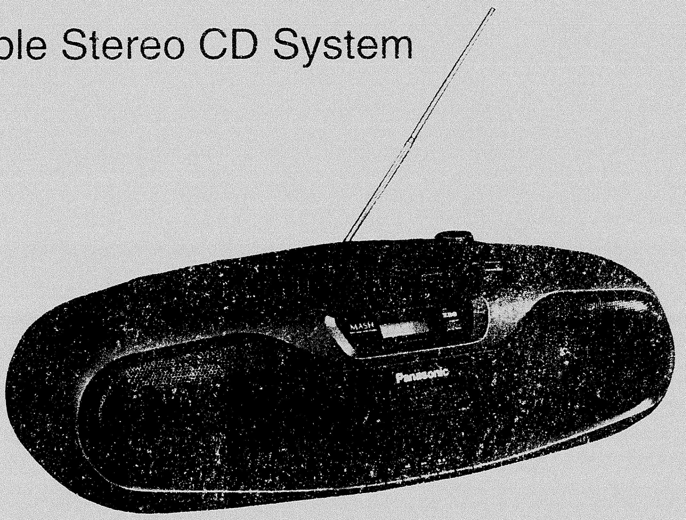
Radio Cassette

RX-DS101

Portable Stereo CD System

COMPACT
disc
DIGITAL AUDIO

MASH*
multi stage noise shaping



Colour

(K) . . . . Black Type

Area

Suffix for Model No.	Area	Colour
(E)	Continental Europe	(K)
(EB)	Great Britain	
(EG)	F.R.Germany & Italy	
(GN)	Oceania	

Tape section: SG-20W MECHANISM SERIES
CD section: RX-DT55 Traverse deck series (S0DD110)

■ SPECIFICATIONS

General:	
Power Requirement:	AC; 230V~240V, 50Hz Battery; 15V (10 "D" size, R20/LR20 size batteries)
Power Consumption:	45W (AC only)
Power Output:	45W (22.5 W x 2)...PMPO
Speaker:	Woofer; 10 cm (4") x 2 (2.7Ω)
Input:	MIC; 5mV (600Ω)
Outputs:	HEADPHONES; 32Ω, Ø 3.5
Dimensions:	610(W) x 184(H) x 266(D) mm (24" x 7$^{1}/_{4}$" x 10$^{1}/_{2}$")
Weight:	5.4 kg (11 lbs. 14 oz) without batteries.
Disc Player Section:	
Sampling Frequency:	44.1 kHz
D-A Conversion:	MASH (1 Bit DAC)
Beam Source:	Semiconductor laser (wavelength 780 nm)
No. of Channels:	2 channels, stereo
Frequency Range:	20~20,000 Hz (+0/−2 dB)
S/N Ratio:	75 dB (1 kHz)
Wow and Flutter:	Unmeasurable
Radio Section:	
Frequency Range:	FM; 87.5 ~ 108 MHz MW; 520 ~ 1610 kHz LW; 148.5 ~ 285kHz
Intermediate Frequency:	FM; 10.7MHz AM; 459 kHz
Sensitivity:	FM; 12 dB/50mW output (−3 dB Limit Sens.) MW; 52 dB/m/50mW output LW; 54 dB/m/50mW output
Tape Deck Section:	
Frequency Range:	40~14,000 Hz (with normal tape)
Recording System:	AC bias, AC erase
Tape Speed:	4.8cm/s (1$^{7}/_{8}$ ips)
Monitor System:	Variable sound monitor
Track System:	4-track 2-channel stereo recording and playback.

*MASH
- MASH (Multi-Stage Noise Shaping) is an effective oversampling D/A conversion technique which realizes a high S/N ratio and needs no highly complex manufacturing processes such as a laser trimming.
- MASH is a trademark of NTT (Nippon Telegraph and Telephone Corporation).

Notes:
1. Weights and dimensions shown are approximate.
2. Design and specifications are subject to change without notice.

Panasonic

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CAUTION:
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCES OR PROCEDURES OTHER THAN THOSE SPECIFIED HERIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

■ PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "ON" ,invisible laser radiation is emitted from the pick-up lens .

Wave Length: 780 nm
Maximum output radiation power from pick up: 100 μW/VDE

Laser radiation from the pick-up lens is within safety level ,but take precaution on the followings:

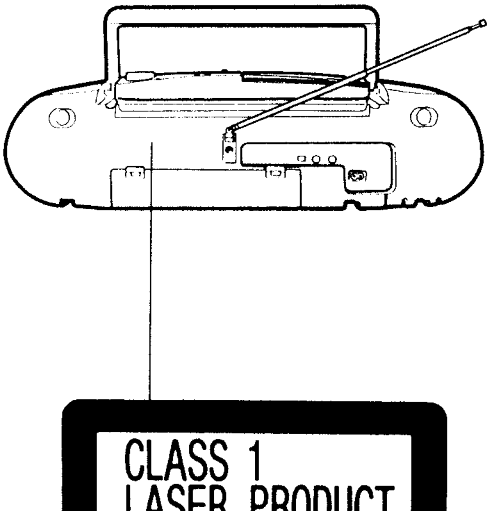
1. Do not disassemble the optical pick up unit ,since radiation from exposed laser diode is dangerous .
2. Do not adjust the variable resistor on the pickup unit .It has already been adjusted .
3. Do not look at the focus lens using optical instruments .
4. It is Not advisable to look at the pick up lens for a long period of time .

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

Wellenlänge: 780 nm
Maximale strehlungsleistung der lasereinheit: 100μW/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährlich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.



VORSICHT-Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet und Sicherheitsverriegelung überbrückt. Nicht dem Strahl aussetzen.
(Im Inneren des Gerätes)

DANGER-Invisible laser radiation when open and interlock defeated. AVOID DIRECT EXPOSURE TO BEAM.
(Inside of product)

VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

CLASS 1
LASER PRODUCT

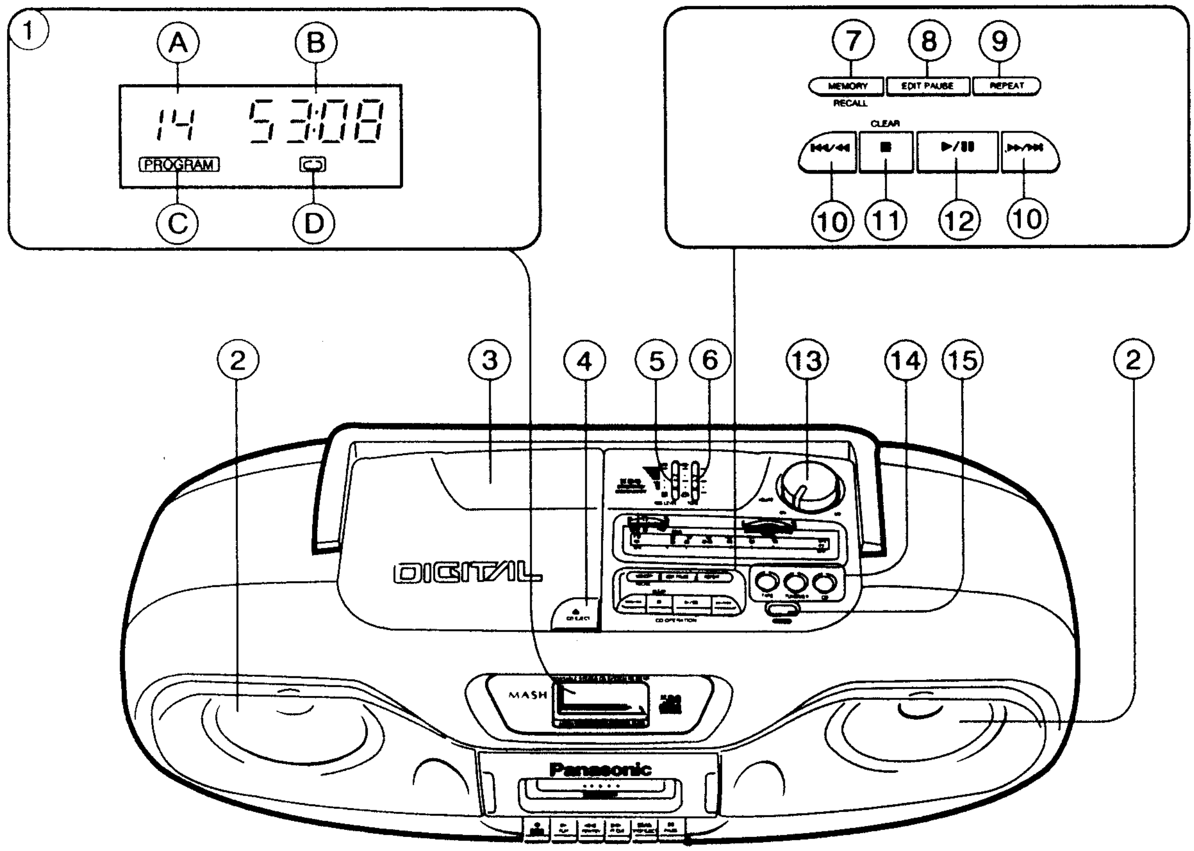
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
(Indersiden at apparatet)

VARNING! Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

■ LOCATION OF CONTROLS

- CD/GENERAL CONTROLS


①
Ⓐ
Ⓑ
14 53:08
PROGRAM
Ⓒ
Ⓓ
⑦
⑧
⑨
MEMORY
RECALL
EDIT PAUSE
REPEAT
CLEAR
⑩
⑪
⑫
⑩
②
③
④
⑤
⑥
⑬
⑭
⑮
②
DIGITAL
MASH
Panasonic

① Display section
A: Track display
B: Playing time display
C: Program indicator (PROGRAM)
D: Repeat indicator (🔁)

② Speakers

③ Disc holder

④ CD eject button (▲CD EJECT)

⑤ Extra bass system control (XBS LEVEL)

⑥ Tone control (TONE)

⑦ Memory/recall button (MEMORY, RECALL)

⑧ Edit pause button (EDIT PAUSE)

⑨ Repeat button (REPEAT)

⑩ Skip/search buttons (|◀◀/◀◀, ▶▶/▶▶|)

⑪ Stop/clear button (■ CLEAR)

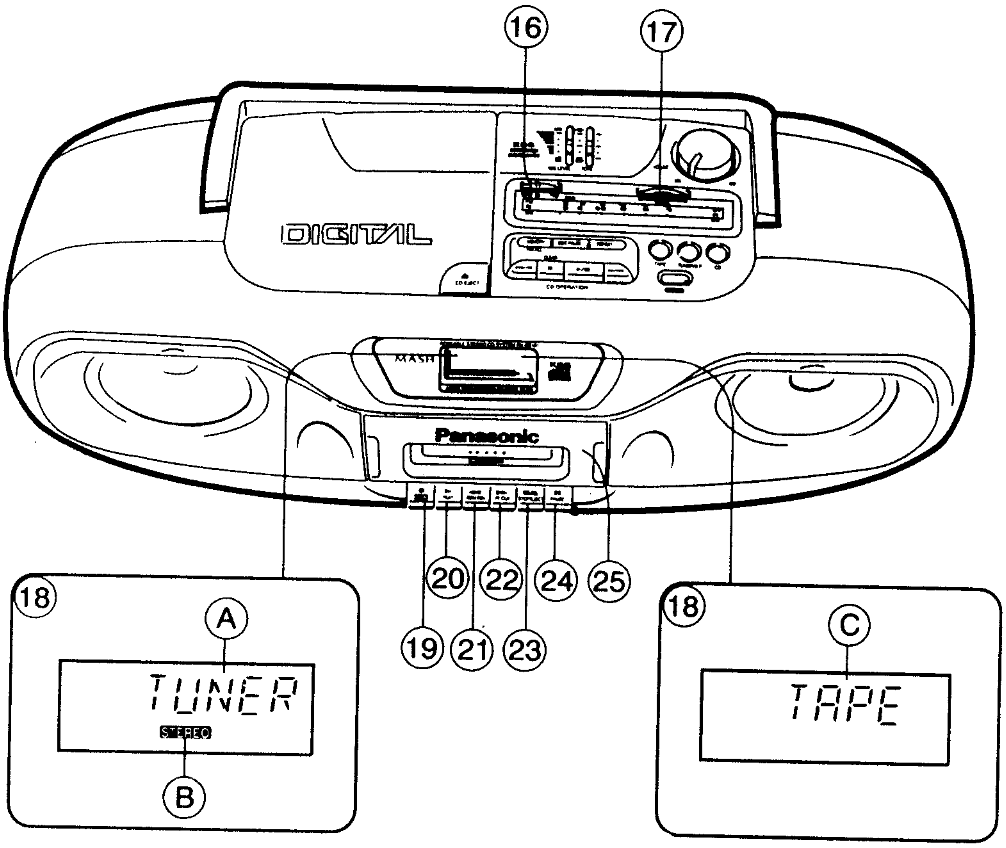
⑫ Play/pause button (▶/II)

⑬ Volume control (VOLUME)

⑭ Function select buttons
(TAPE, TUNER/B.P., CD)

⑮ Operation switch (OPERATION)

■ TUNER/TAPE DECK CONTROLS


⑯
⑰
DIGITAL
Panasonic
⑱
Ⓐ
TUNER
STEREO
Ⓑ
⑳ ㉒ ㉔ ㉕
⑲ ㉑ ㉓
⑱
Ⓒ
TAPE

⑯ Band selector (BAND)

⑰ Tuning control (TUNING)

Display section
A: Tuner mode display
B: Stereo indicator (STEREO)
C: Tape mode display

⑲ Record button (● REC)

⑳ Playback button (▶ PLAY)

㉑ Rewind/review button (◀◀ REW/REV)

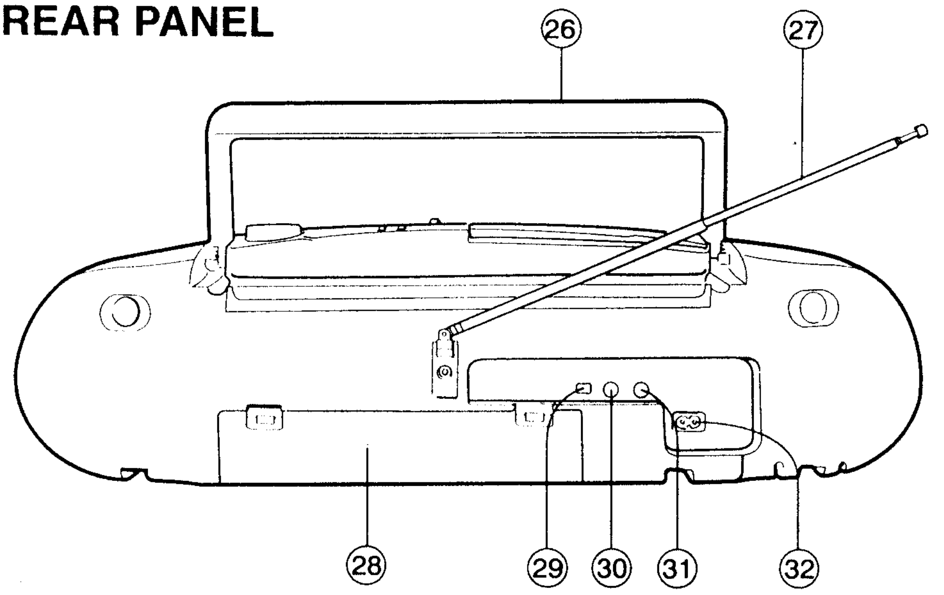
㉒ Fast/forward/cue button (▶▶ FF/CUE)

㉓ Stop/eject button (■/▲ STOP/EJECT)

㉔ Pause button (❚❚/PAUSE)

㉕ Cassette compartment cover

■ REAR PANEL



- ㉖ **Handle**
- ㉗ **Telescopic antenna**
- ㉘ **Battery compartment cover**
- ㉙ **FM mode selector (FM MODE)**
- ㉚ **Mixing microphone jack (MIX MIC)**
- ㉛ **Headphone jack (PHONES)**
- ㉜ **AC socket (AC IN ~)**

■ HANDLING PRECAUTIONS FOR TRAVERSE DECK

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

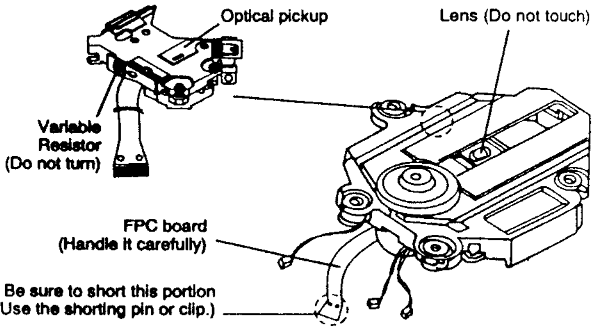
• Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FPC board). When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

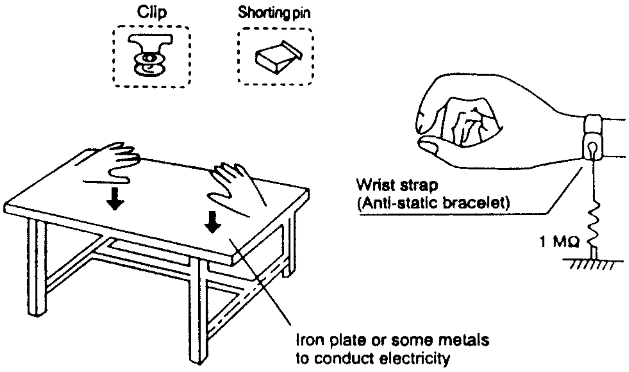
• Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).



Optical pickup
Lens (Do not touch)
Variable Resistor (Do not turn)
FPC board (Handle it carefully)
Be sure to short this portion (Use the shorting pin or clip.)



Clip
Shorting pin
Wrist strap (Anti-static bracelet)
1 MΩ
Iron plate or some metals to conduct electricity

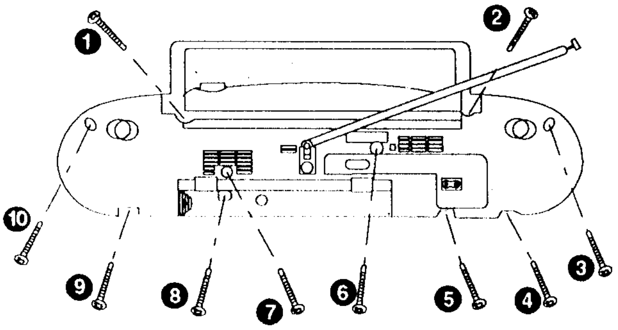
DISASSEMBLY INSTRUCTIONS

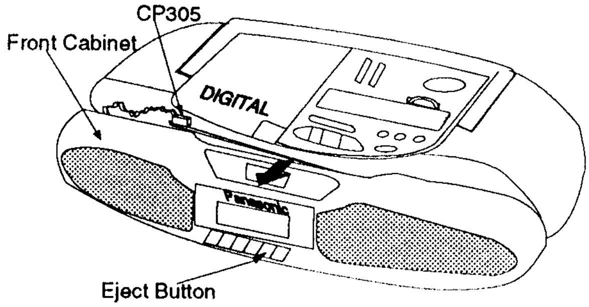
Ref. No 1

Removal of the Front Cabinet

Procedure 1

1. Remove 10 screws (❶ ~ ❿).


❶
❷
❸
❹
❺
❻
❼
❽
❾
❿

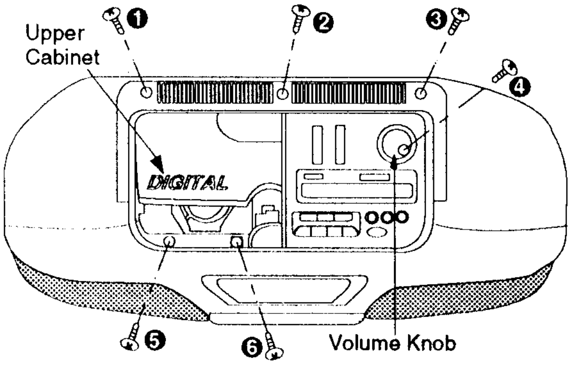

CP305
Front Cabinet
DIGITAL
Panasonic
Eject Button

2. Press the eject button and remove connector CP305.
3. Remove the front cabinet in the direction of arrow.

Ref. No 2

Removal of Upper Cabinet

Procedure 1 → 2


Upper Cabinet
❶
❷
❸
❹
DIGITAL
❺
❻
Volume Knob

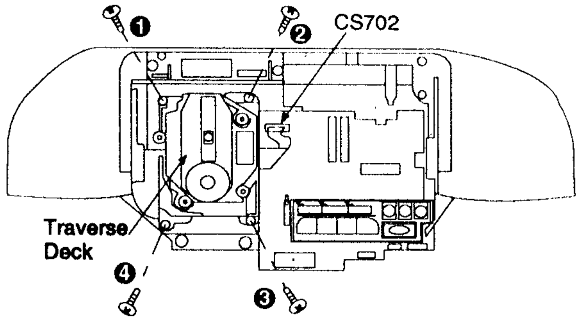
1. Pull out the volume knob.
2. Remove 6 screws (❶ ~ ❻) and remove the upper cabinet.

Ref. No 3

Removal of Traverse Deck

Procedure 1 → 2 → 3

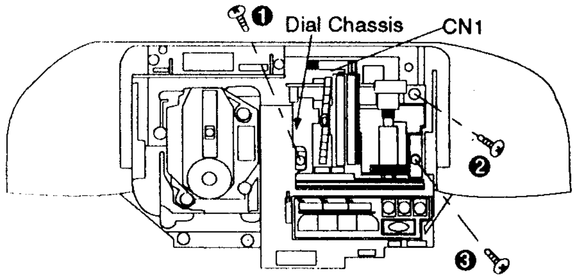
1. Remove the 4 screws (❶ ~ ❹).
2. Remove connector CS702.


❶
❷
CS702
Traverse Deck
❹
❸

Ref. No 4

Removal of Dial Chassis

Procedure 1 → 2 → 4

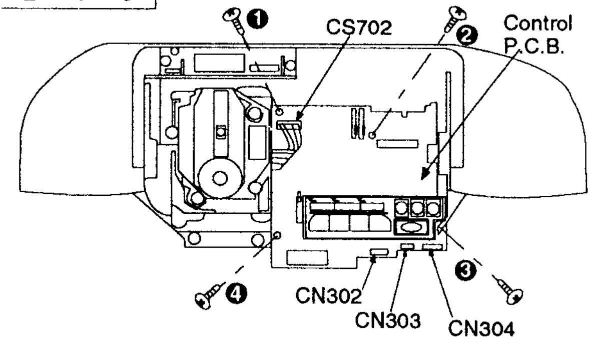

❶
Dial Chassis
CN1
❷
❸

1. Remove 3 screws (❶ ~ ❸).
2. Remove connector CN1.

Ref. No 5

Removal of Control P.C.B.

Procedure 1 → 2 → 4 → 5

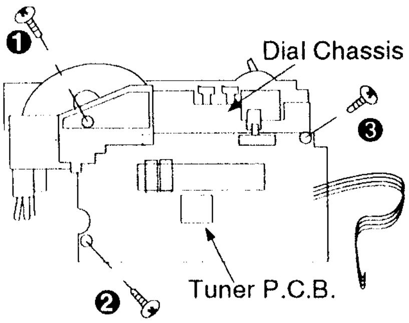

❶
CS702
❷
Control P.C.B.
❸
❹
CN302
CN303
CN304

1. Remove 4 screws (❶ ~ ❹).
2. Remove 4 connectors CN302, CN303, CN304 & CS702.

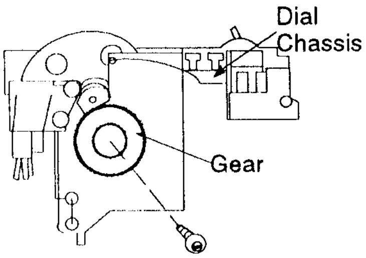
Ref. No
6

Removal of Tuner P.C.B. and Varicon Gear

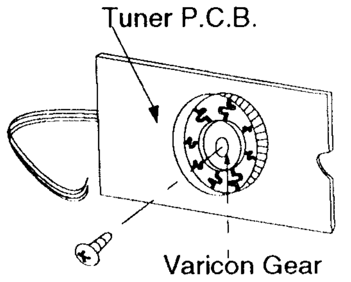
Procedure
1→ 2→ 4→ 6


❶
Dial Chassis
❸
❷
Tuner P.C.B.

1. Remove 3 screws (❶ & ❸).
2. Pull out the Tuner P.C.B.


Dial Chassis
Gear

3. Remove 1 screw.
4. Pull out the Gear.

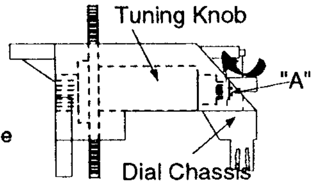

Tuner P.C.B.
Varicon Gear

3. Remove 1 screw and pull out the Varicon Gear from the reverse side of Tuner P.C.B.

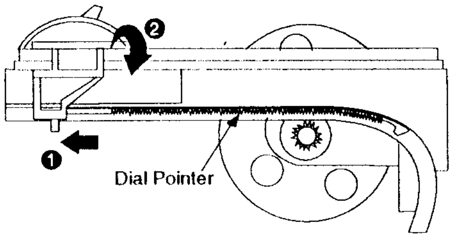
Ref. No
7

Removal of Tuning Knob and Dial Pointer

Procedure
1→ 2→ 4→ 7


Tuning Knob
"A"
Dial Chassis

1. Position a screw driver at the location of "A" and remove the tuning knob in the direction of arrow .

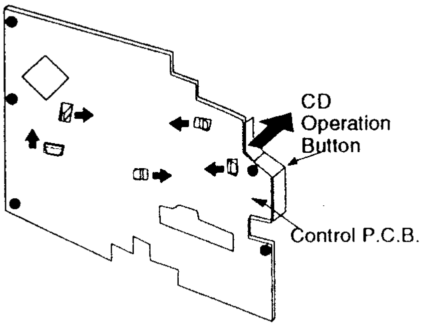

❷
❶
Dial Pointer

2. Slide the Dial Pointer in the direction of arrow ❶ and pull up one end of the pointer in the direction of arrow ❷ and slide up the other end gradually.

Ref. No
8

Removal of the CD Operation Button

Procedure
1→ 2→ 4→ 7→ 8

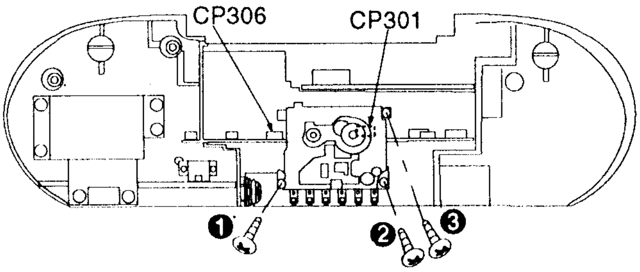

CD Operation Button
Control P.C.B.

1. Release 5 hooks in the direction of arrow and pull out the CD operation button .

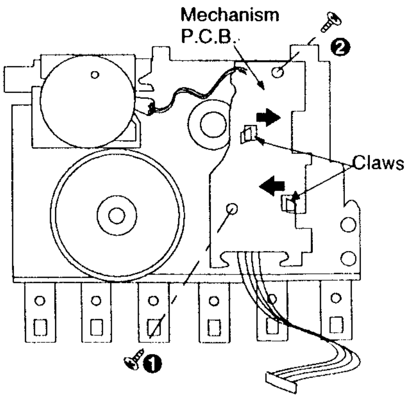
Ref. No
9

Removal of the Mechanism and Mechanism P.C.B.

Procedure
1 → 9


CP306
CP301
❶
❷
❸

1. Remove 3 screws (❶ ~ ❸)
2. Remove 2 connectors CP306 and CP301 .

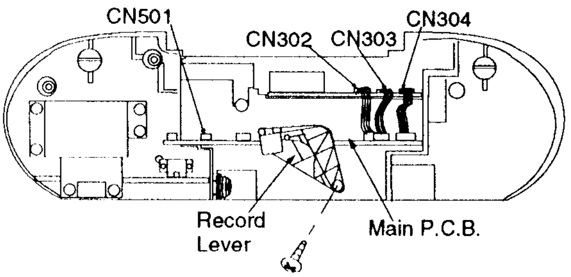

Mechanism P.C.B.
❷
Claws
❶

3. Remove 2 screws (❶ ~ ❷)
4. Release the 2 claws in the direction of arrow and remove the mechanism P.C.B.

Ref. No
10

Removal of Main P.C.B

Procedure
1→2→4 → 10

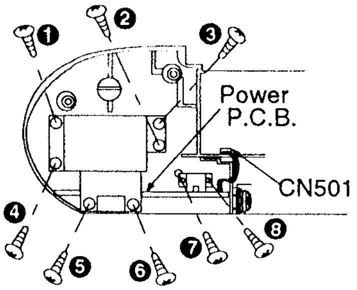

CN501
CN302
CN303
CN304
Record
Lever
Main P.C.B.

1. Remove 1 screw and pull out the record lever.
2. Remove 4 connectors (CN302,CN303,CN304 & CN501) and pull out the Main P.C.B.

Ref. No
11

Removal of Power P.C.B

Procedure
1 → 11

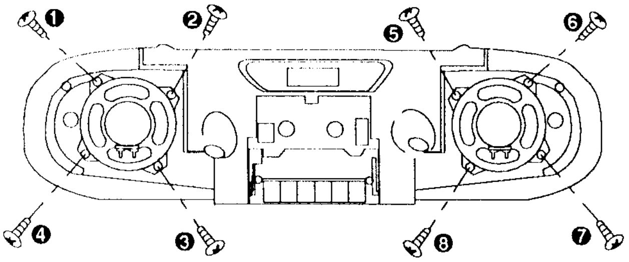

❶
❷
❸
Power
P.C.B.
CN501
❹
❺
❻
❼
❽

1. Remove 8 screws (❶~❽).
2. Remove the connector CN501 and pull out the Power P.C.B.

Ref. No
12

Removal of Speakers

Procedure
1 → 12

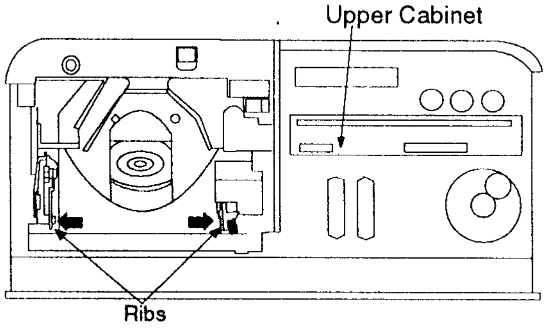


1. Remove 8 screws (❶ ~ ❽).

Ref. No
13

Removal of the CD Cover

Procedure
1 → 2 →13

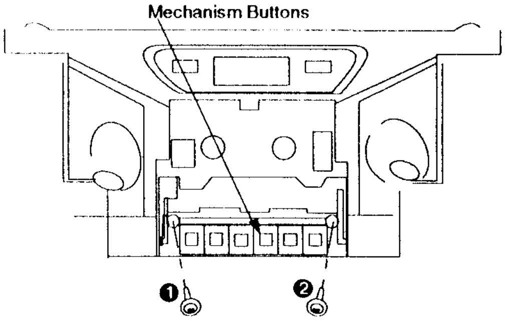

Upper Cabinet
Ribs

- Release 2 ribs in the direction of arrow.

Ref. No
14

Removal of Mechanism Button

Procedure
1 → 14

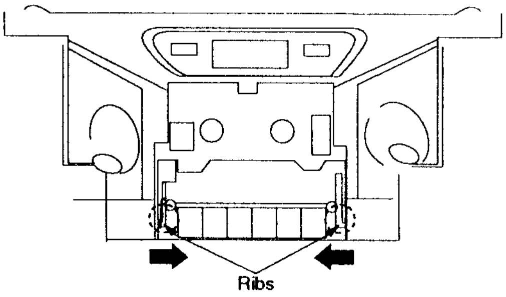

Mechanism Buttons
❶
❷

1. Remove 2 screws (❶ ~ ❷).
2. Remove the mechanism buttons .

Ref. No
15

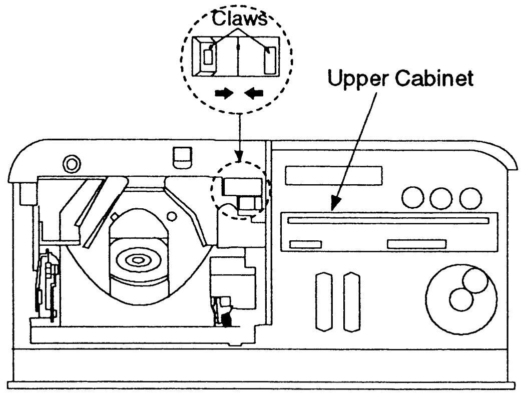
Removal of Cassette Holder

Procedure
1 → 15



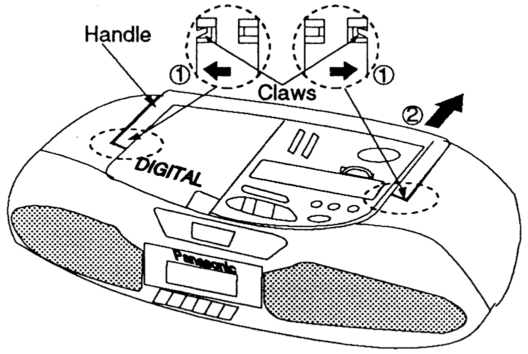
1. Release the ribs in the direction of arrow .
2. Remove the cassette holder .

Ref. No 16	Removal of the CD Eject Button
Procedure 1 → 2 →16	


Claws
Upper Cabinet

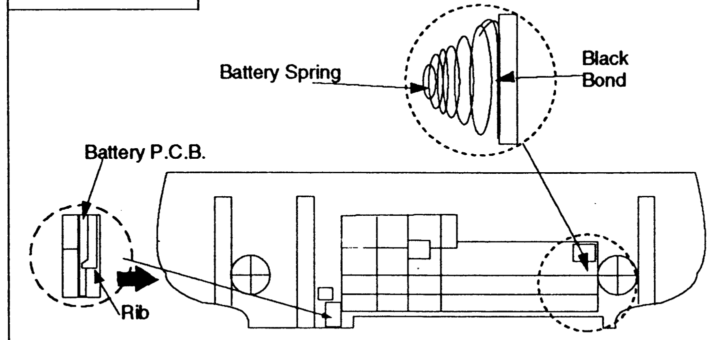
- Release 2 claws in the direction of arrow.

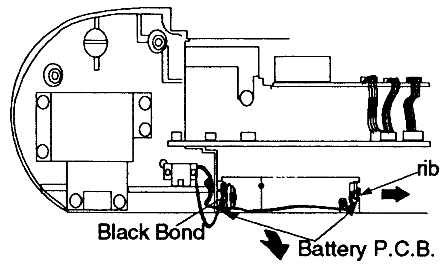
Ref. No 17	Removal of the Handle
Procedure 17	


Handle
①
Claws
①
②
DIGITAL
Panasonic

1. Release 2 claws in the direction of arrow ①.
2. Remove the handle in the direction of arrow ②.

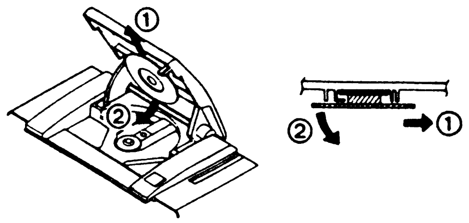
Ref. No 18	Removal of the Battery Spring & P.C.B
Procedure 1 → 9 →18	


Battery Spring
Black Bond
Battery P.C.B.
Rib

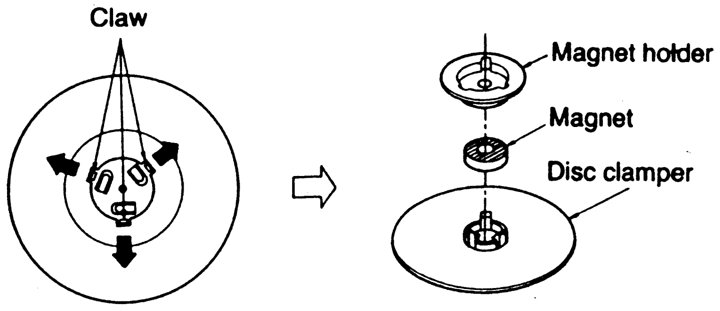

rib
Black Bond
Battery P.C.B.

1. Remove black bond and pull out battery spring .
2. Release rib in the direction of arrow to remove the battery P.C.B.
3. Pull out both battery P.C.B. in the direction of arrow .

Ref. No 19	Removal of the Disc Clamper
Procedure 19	

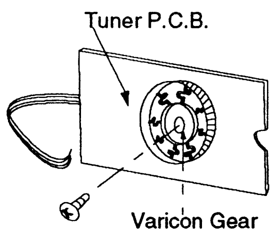


Removal of the Magnet

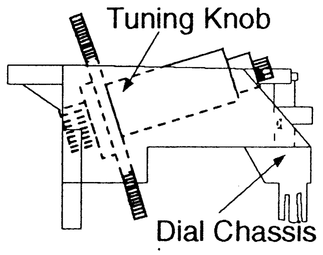

Claw
Magnet holder
Magnet
Disc clamper

1. Press the CD eject button and then open the CD cover.
2. Slide the disc clamper in the arrow ① and remove the disc clamper in the direction of arrow ② .

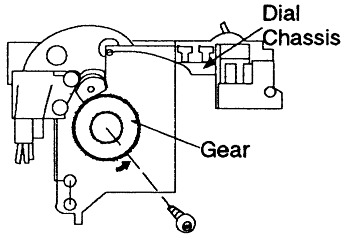
● Assembly of Dial Pointer


Tuner P.C.B.
Varicon Gear

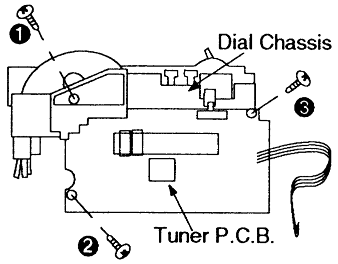
1. Locate the Varicon Gear onto Tuner P.C.B. and replace 1 screw.
2. Turn Varicon Gear fully anti-clockwise.


Tuning Knob
Dial Chassis

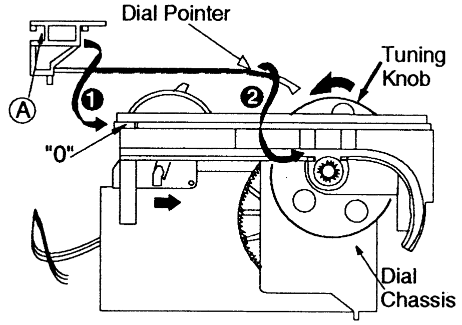
3. Locate the Tuning Knob to the Dial Chassis .


Dial Chassis
Gear

4. Position Gear onto Dial Chassis and replace 1 screw.
5. Turn Gear fully anti-clockwise.

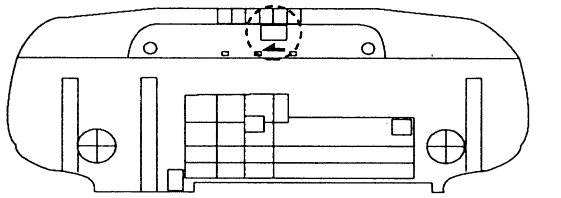

❶
Dial Chassis
❸
❷
Tuner P.C.B.

6. Position the Tuner P.C.B. onto the Dial Chassis and replace 3 screws. (❶ ~❸)


Dial Pointer
Tuning Knob
Ⓐ
❶
❷
"0"
Dial Chassis

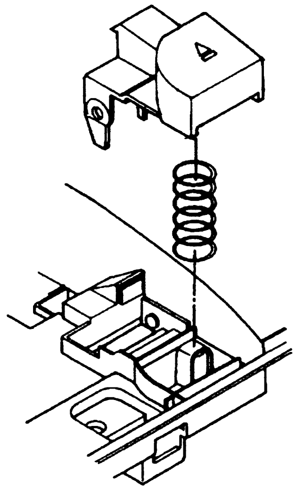
7. Turn the tuning knob in anti-clockwise direction completely .
8. Slot the dial pointer onto the chassis in the direction of arrow ❶ & ❷ . (Ensure that location Ⓐ of the dial pointer is in line with the "O" point marking on the dial chassis .

● What to do when the tape is entangled

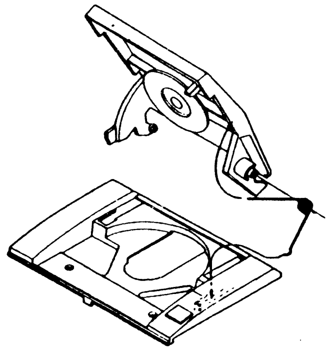


When the tape is caught in the pinch roller, etc. Release the tape by turning the pulley on the motor with a screwdriver in the direction of arrow.

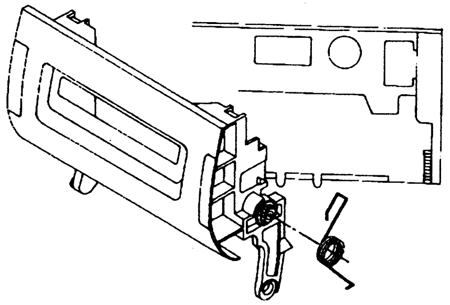
● CD Eject Lever Assembly



● CD Cover Assembly



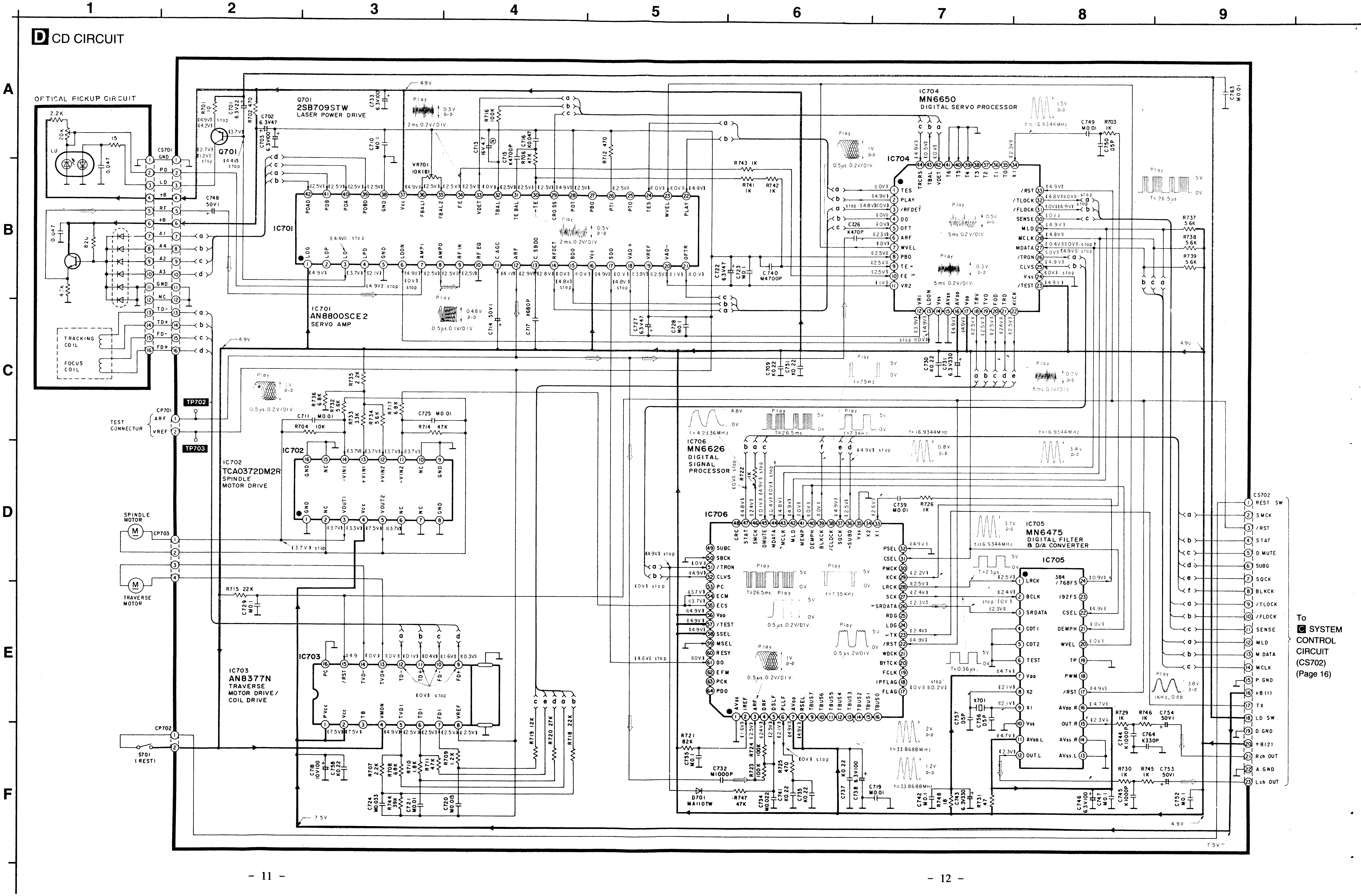
● Cassette Holder Assembly



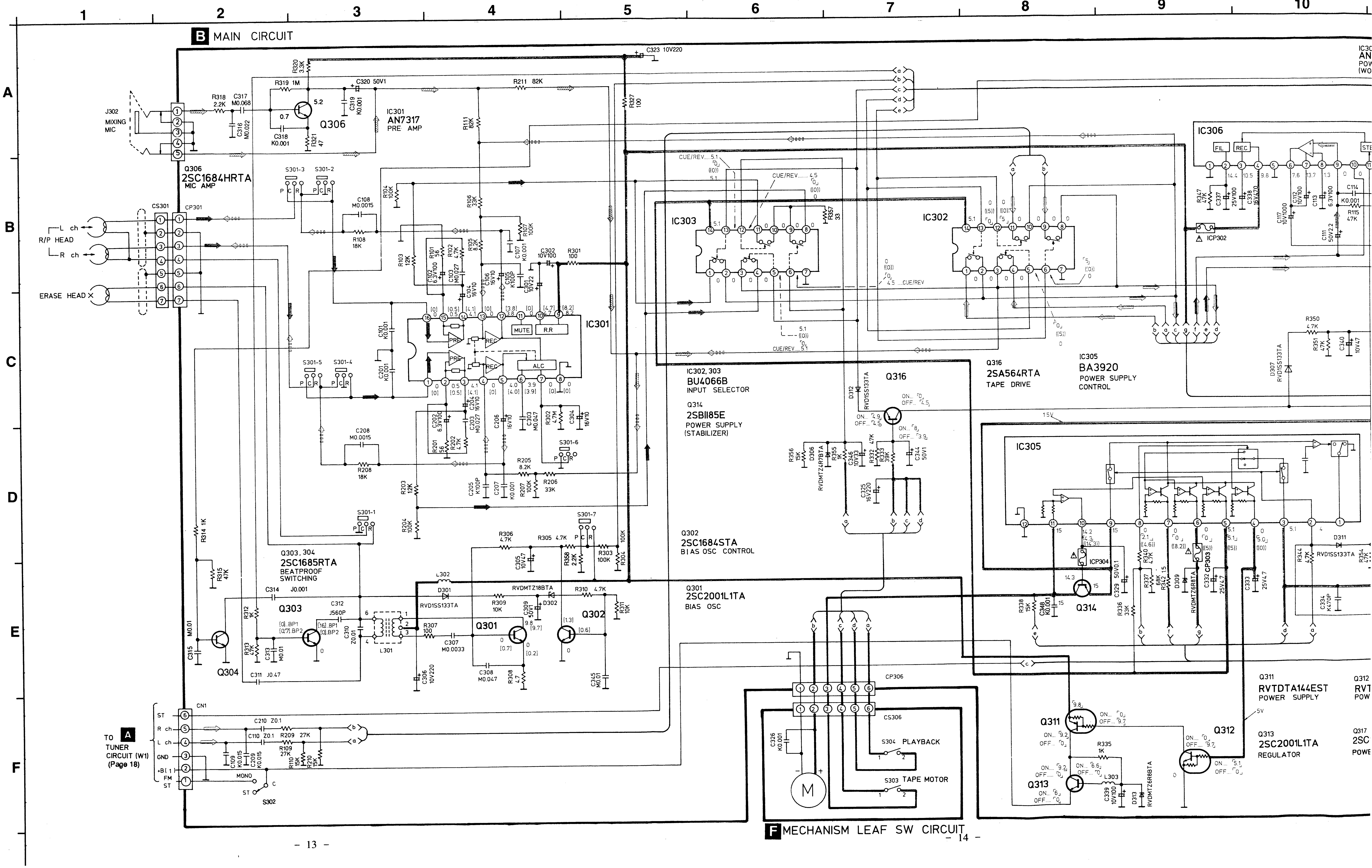
■ SCHEMATIC DIAGRAM • CD CIRCUIT

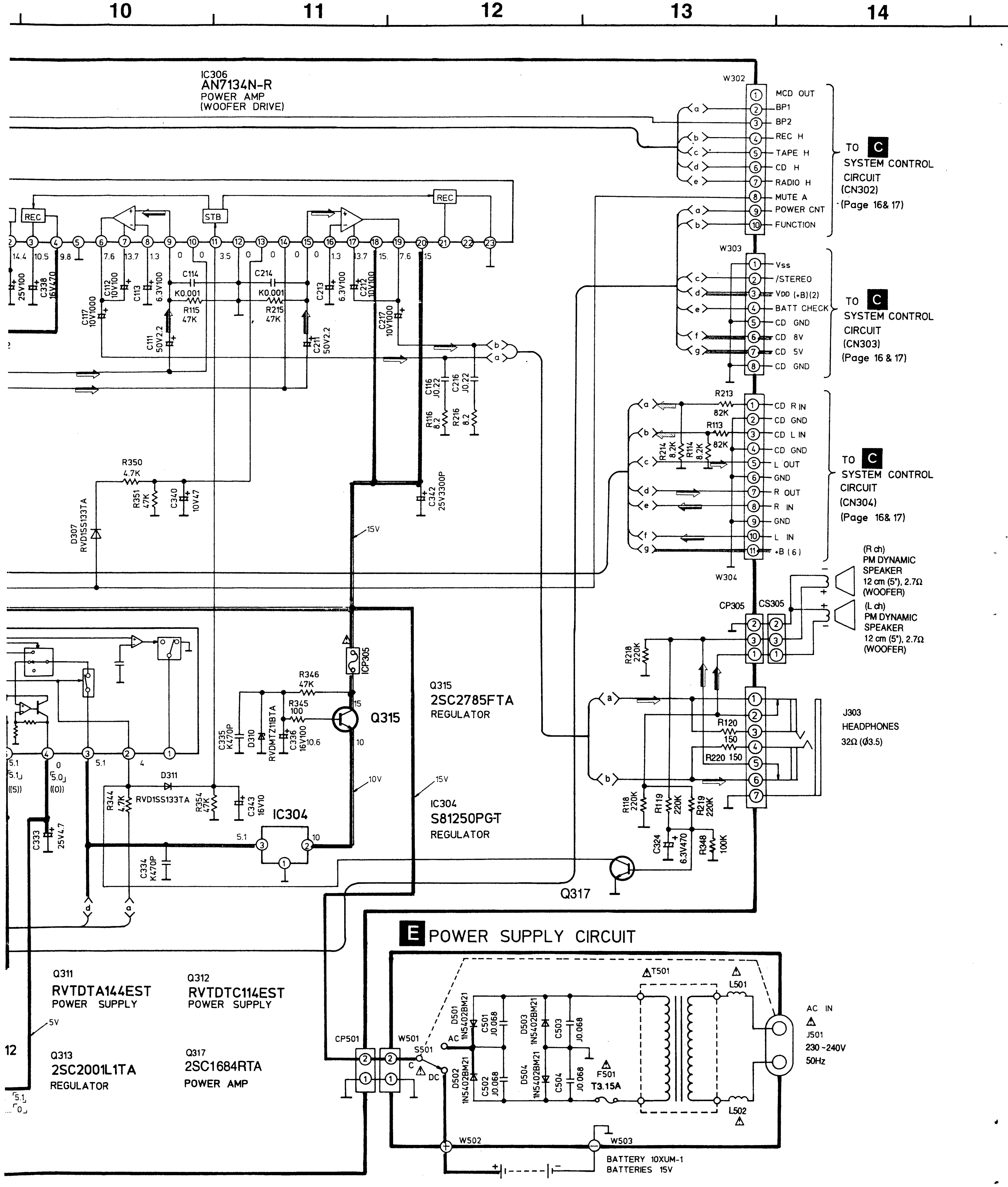
: CD Signal Line

: +B Line

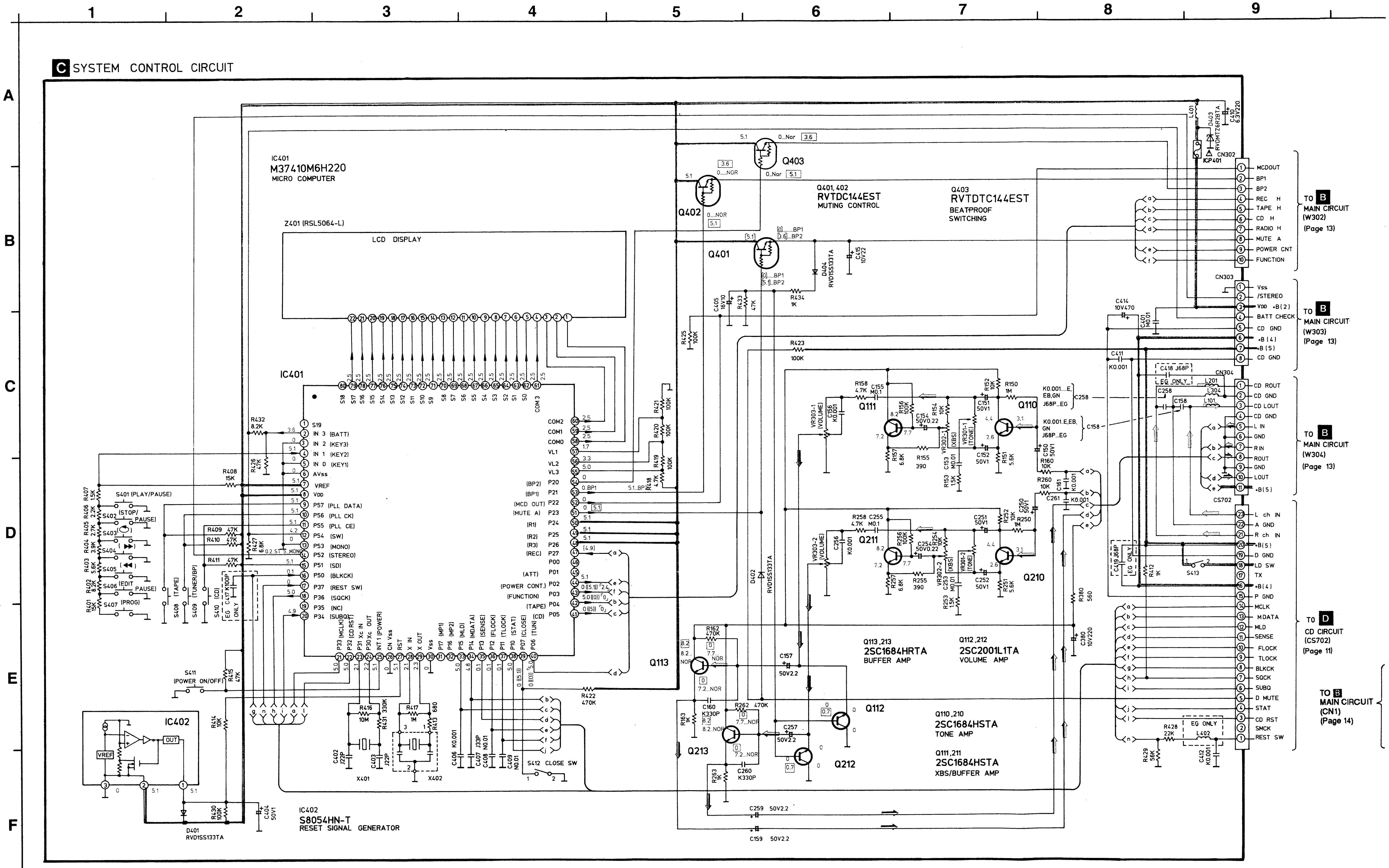

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
D CD CIRCUIT
OPTICAL PICKUP CIRCUIT
LD
TRACKING COIL
FOCUS COIL
CS701
GND
PD
LD
+B
RF
+B
A1
A4
A2
A3
GND
NC
TD-
TD+
FD-
FD+
Q701
2SB709STW
LASER POWER DRIVE
IC701
AN8800SCE2
SERVO AMP
VR701
10K(B)
IC704
MN6650
DIGITAL SERVO PROCESSOR
f=16.9344MHz
IC702
TCA0372DM2R
SPINDLE MOTOR DRIVE
IC703
AN8377N
TRAVERSE MOTOR DRIVE/COIL DRIVE
IC706
MN6626
DIGITAL SIGNAL PROCESSOR
IC705
MN6475
DIGITAL FILTER & D/A CONVERTER
X701
D701
MA110TW
TP702
TP703
TEST CONNECTOR
CP701
ARF
VREF
SPINDLE MOTOR
CP703
TRAVERSE MOTOR
CP702
S701 (REST)
Play
stop
4.9V
7.5V
CS702
REST SW
SMCK
/RST
STAT
D.MUTE
SUBQ
SQCK
BLKCK
/TLOCK
/FLOCK
SENSE
MLD
M DATA
MCLK
P.GND
+B(1)
TX
LD SW
D.GND
+B(2)
Rch OUT
A.GND
Lch OUT
To
C SYSTEM CONTROL CIRCUIT (CS702)
(Page 16)

■ SCHEMATIC DIAGRAM •MAIN CIRCUIT , POWER SUPPLY CIRCUIT


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
B MAIN CIRCUIT
J302 MIXING MIC
Q306 2SC1684HRTA MIC AMP
IC301 AN7317 PRE AMP
C323 10V220
R320 3.3K
R319 1M
C320 50V1
R211 82K
R318 2.2K
C317 M0.068
C316 M0.022
C318 K0.001
R321 47
C319 K0.001
R111 82K
R327 100
CS301
CP301
L ch
R/P HEAD
R ch
ERASE HEAD
S301-3
S301-2
S301-4
S301-5
S301-6
S301-1
S301-7
C108 M0.0015
R108 18K
C208 M0.0015
R208 18K
R104 100K
R106 33K
R107 100K
C107 K0.001
C302 10V100
R301 100
R103 12K
R101 56
R102 4.7K
R105 8.2K
C102 6.3V100
C103 M0.027
C104 16V10
C106 16V10
C105 K100P
C301 10V22
C101 K0.001
C201 K0.001
C202 6.3V100
C203 M0.027
C204 16V10
C206 16V10
C303 M0.027
R302 4.7M
C304 16V10
R201 56
R202 4.7K
R205 8.2K
R206 33K
R207 100K
C205 K100P
C207 K0.001
R203 12K
R204 100K
MUTE
R.R
ALC
PRE
REC
IC301
R314 1K
R315 47K
Q303, 304 2SC1685RTA BEATPROOF SWITCHING
R306 4.7K
R305 4.7K
R358 2.2K
C305 10V47
R303 100K
R304 100K
L302
D301 RVD1SS133TA
RVDMTZ18BTA D302
R309 10K
R310 4.7K
R311 10K
C314 J0.001
C312 J560P
R312 1K
R313 47K
C313 M0.01
C310 Z0.01
L301
R307 100
C307 M0.0033
C309 50V1
Q303
Q301
Q302
Q304
C315 M0.01
C311 J0.47
C306 10V220
C308 M0.047
R308 4.7
C345 M0.01
CN1
TO A TUNER CIRCUIT (W1) (Page 18)
ST
R ch
L ch
GND
+B(1)
FM ST
C210 Z0.1
C110 Z0.1
R209 27K
R109 27K
R110 15K
R210 15K
C109 K0.015
C209 K0.015
MONO
ST
C
S302
IC302, 303 BU4066B INPUT SELECTOR
Q314 2SB1185E POWER SUPPLY (STABILIZER)
Q302 2SC1684STA BIAS OSC CONTROL
Q301 2SC2001L1TA BIAS OSC
IC303
IC302
CUE/REV
R357 33
Q316 2SA564RTA TAPE DRIVE
IC305 BA3920 POWER SUPPLY CONTROL
Q316
D312 RVD1SS133TA
R356 15K
D306 RVDMTZ4R7BTA
R355 1K
C346 10V33
R332 47K
R333 39K
C344 50V1
C325 16V220
CP306
CS306
C326 K0.001
M
S304 PLAYBACK
S303 TAPE MOTOR
F MECHANISM LEAF SW CIRCUIT
IC306
FIL
REC
R347 47K
C337 25V100
C338 16V470
C117 10V1000
C112 10V100
C113 6.3V100
C114 K0.001
R115 47K
C111 50V2.2
ICP302
R350 4.7K
R351 47K
C340 10V47
D307 RVD1SS133TA
IC305
15V
ICP304
Q314
R338 15K
C348 K0.001
C329 50V0.1
R336 47K
R337 68K
R340 4.7K
R342 1.5
D309
RVDMTZ6R8BTA
CP303
C332 25V47
C333
C335 25V4.7
C334 K470P
R344 4.7K
RVD1SS133TA
D311
R354 47K
Q311 RVTDTA144EST POWER SUPPLY
Q313 2SC2001L1TA REGULATOR
Q311
Q312
Q313
R335 1K
L303
C339 10V100
D313 RVDMTZ6R8BTA
5V

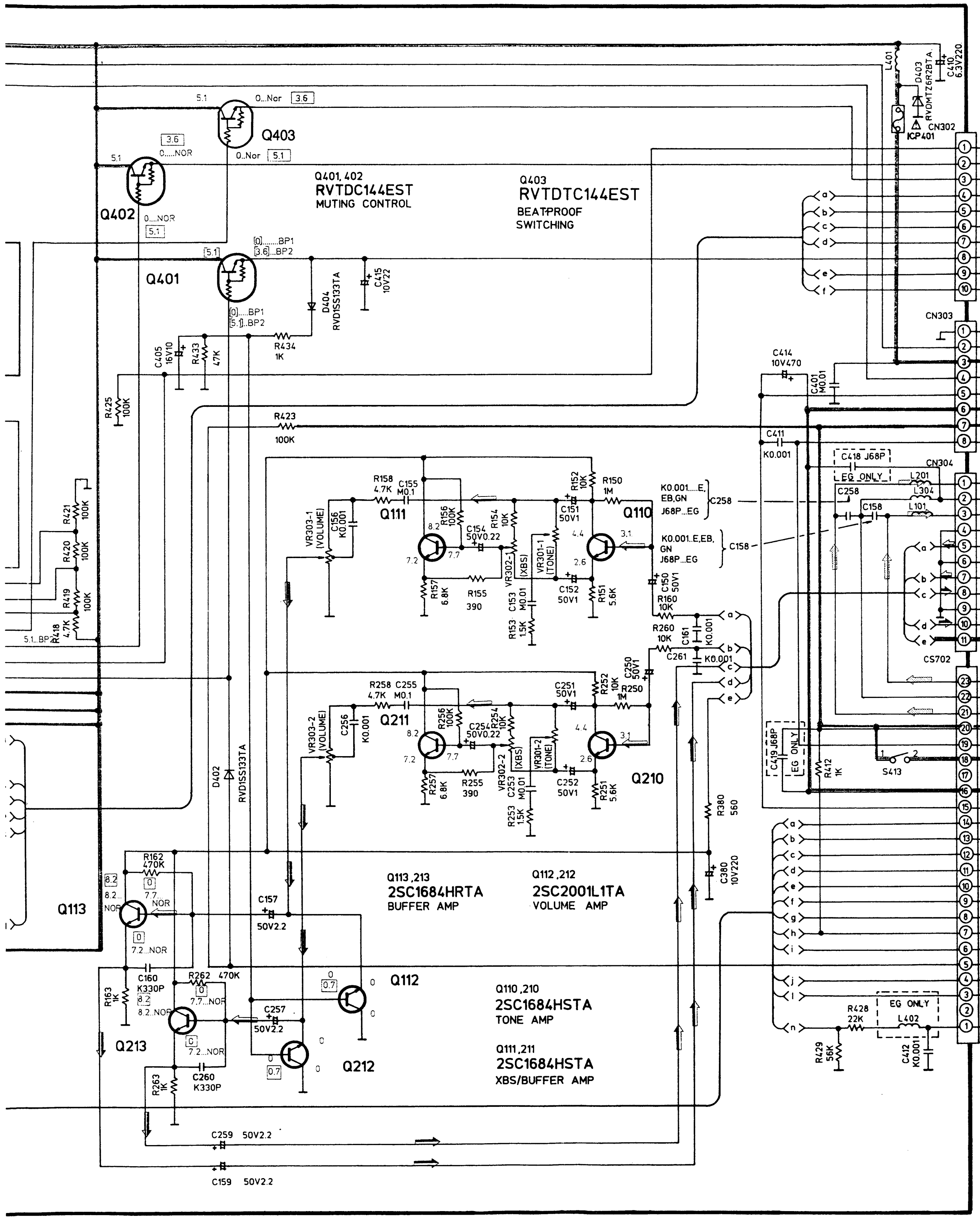

10
11
12
13
14
IC306
AN7134N-R
POWER AMP
(WOOFER DRIVE)
W302
MCD OUT
BP1
BP2
REC H
TAPE H
CD H
RADIO H
MUTE A
POWER CNT
FUNCTION
TO C
SYSTEM CONTROL
CIRCUIT
(CN302)
(Page 16& 17)
W303
Vss
/STEREO
VDD (+B)(2)
BATT CHECK
CD GND
CD 8V
CD 5V
CD GND
TO C
SYSTEM CONTROL
CIRCUIT
(CN303)
(Page 16 & 17)
CD R IN
CD GND
CD L IN
CD GND
L OUT
GND
R OUT
R IN
GND
L IN
+B (6)
W304
TO C
SYSTEM CONTROL
CIRCUIT
(CN304)
(Page 16& 17)
(R ch)
PM DYNAMIC
SPEAKER
12 cm (5"), 2.7Ω
(WOOFER)
(L ch)
PM DYNAMIC
SPEAKER
12 cm (5"), 2.7Ω
(WOOFER)
CP305
CS305
REC
STB
REC
C114
K0.001
R115
47K
C214
K0.001
R215
47K
C111
50V2.2
C211
50V2.2
C112
10V100
C113
6.3V100
C117
10V1000
C213
6.3V100
C212
10V100
C217
10V1000
C338
16V470
25V100
C116
J0.22
C216
J0.22
R116
8.2
R216
8.2
R213
82K
R113
82K
R214
8.2K
R114
8.2K
R350
4.7K
R351
47K
C340
10V47
C342
25V3300P
D307
RVD1SS133TA
15V
ICP305
R346
47K
R345
100
Q315
C335
K470P
D310
RVDMTZ11BTA
C336
16V100
Q315
2SC2785FTA
REGULATOR
D311
RVD1SS133TA
R344
47K
R354
47K
C343
16V10
IC304
10V
15V
IC304
S81250PGT
REGULATOR
C333
25V4.7
C334
K470P
Q317
R218
220K
J303
HEADPHONES
32Ω (Ø3.5)
R120
150
R220 150
R118
220K
R119
220K
R219
220K
C324
6.3V470
R348
100K
Q311
RVTDTA144EST
POWER SUPPLY
Q312
RVTDTC114EST
POWER SUPPLY
5V
Q313
2SC2001L1TA
REGULATOR
Q317
2SC1684RTA
POWER AMP
E POWER SUPPLY CIRCUIT
CP501
W501
S501
AC
DC
D501
1N5402BM21
D502
1N5402BM21
D503
1N5402BM21
D504
1N5402BM21
C501
J0.068
C502
J0.068
C503
J0.068
C504
J0.068
F501
T3.15A
T501
L501
L502
AC IN
J501
230-240V
50Hz
W502
W503
BATTERY 10XUM-1
BATTERIES 15V
12

■ SCHEMATIC DIAGRAM • SYSTEM CONTROL CIRCUIT, TUNER CIRCUIT

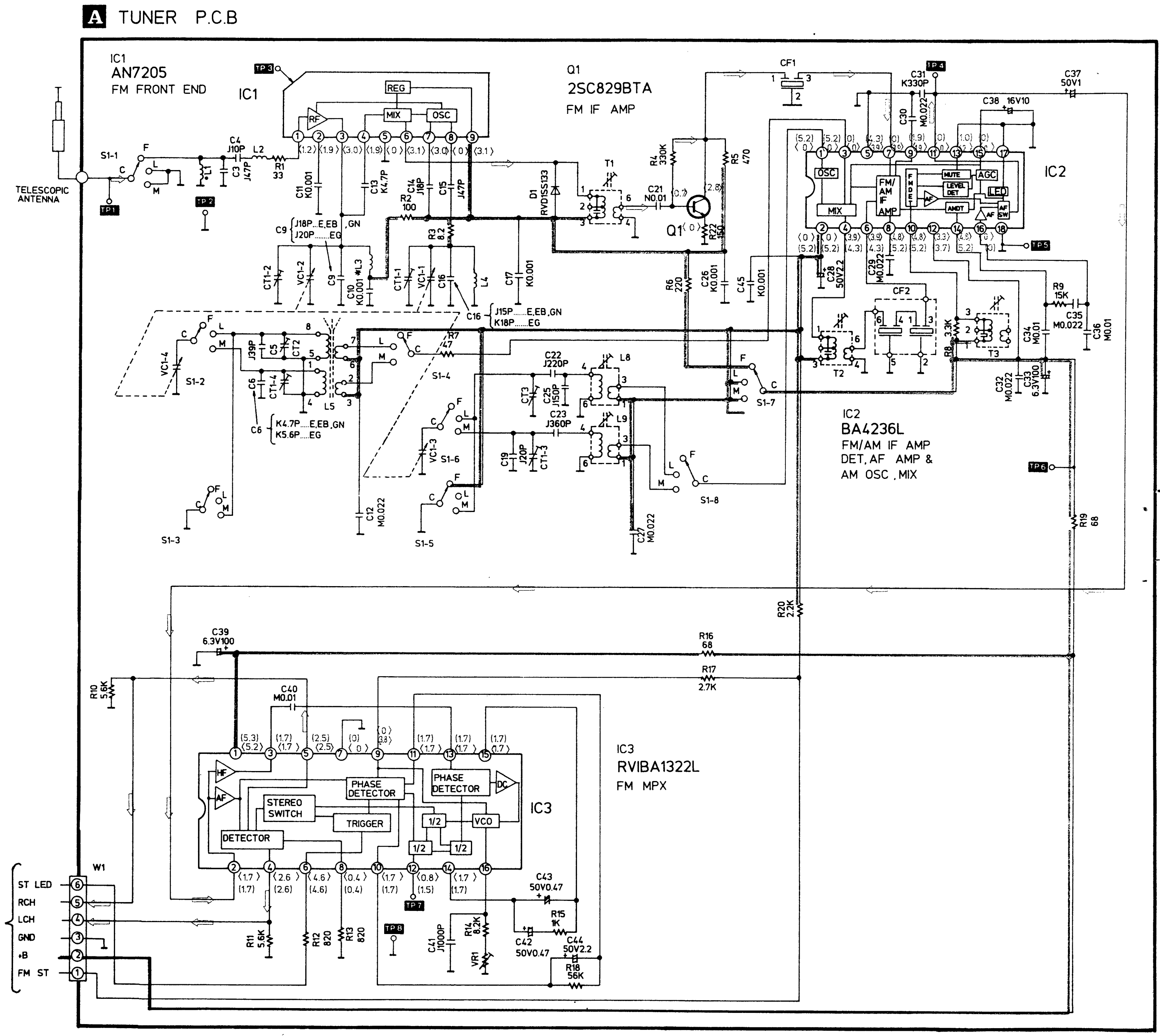

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
C SYSTEM CONTROL CIRCUIT
IC401
M37410M6H220
MICRO COMPUTER
Z401 (RSL5064-L)
LCD DISPLAY
Q403
Q402
Q401
Q401, 402
RVTDC144EST
MUTING CONTROL
Q403
RVTDTC144EST
BEATPROOF
SWITCHING
IC401
S401 (PLAY/PAUSE)
S402 (STOP/PAUSE)
S403
S404
S405
S406 (EDIT PAUSE)
S407 (PROG)
S408 (TAPE)
S409 (TUNER/BP)
S410 (CD)
S411 (POWER ON/OFF)
S412 CLOSE SW
S413
IC402
VREF
OUT
IC402
S8054HN-T
RESET SIGNAL GENERATOR
D401
RVD1SS133TA
D402
RVD1SS133TA
D404
RVD1SS133TA
X401
X402
Q110
Q111
Q112
Q113
Q210
Q211
Q212
Q213
Q113, 213
2SC1684HRTA
BUFFER AMP
Q112, 212
2SC2001L1TA
VOLUME AMP
Q110, 210
2SC1684HSTA
TONE AMP
Q111, 211
2SC1684HSTA
XBS/BUFFER AMP
VR303-1 (VOLUME)
VR303-2 (VOLUME)
VR301-1 (TONE)
VR301-2 (TONE)
VR302-1 (XBS)
VR302-2 (XBS)
CN302
CN303
CN304
CS702
MCDOUT
BP1
BP2
REC H
TAPE H
CD H
RADIO H
MUTE A
POWER CNT
FUNCTION
TO B MAIN CIRCUIT (W302) (Page 13)
Vss
/STEREO
VDD +B(2)
BATT CHECK
CD GND
+B(4)
+B(5)
CD GND
TO B MAIN CIRCUIT (W303) (Page 13)
CD ROUT
CD GND
CD LOUT
CD GND
L IN
GND
R IN
ROUT
GND
LOUT
+B(5)
TO B MAIN CIRCUIT (W304) (Page 13)
L ch IN
A GND
R ch IN
+B(5)
D GND
LD SW
TX
+B(4)
P GND
MCLK
MDATA
MLD
SENSE
FLOCK
TLOCK
BLKCK
SQCK
SUBQ
D MUTE
STAT
CD RST
SMCK
REST SW
TO D CD CIRCUIT (CS702) (Page 11)
TO B MAIN CIRCUIT (CN1) (Page 14)
EG ONLY
ICP401
L401
D403
RVDMTZ6R2BTA

RCUIT

5 6 7 8 9 10 11 12 13 14


Q401,402
RVTDC144EST
MUTING CONTROL
Q403
RVTDTC144EST
BEATPROOF SWITCHING
Q402
Q403
Q401
CN302
MCDOUT
BP1
BP2
REC H
TAPE H
CD H
RADIO H
MUTE A
POWER CNT
FUNCTION
TO B MAIN CIRCUIT (W302) (Page 13)
CN303
Vss
/STEREO
VDD +B(2)
BATT CHECK
CD GND
+B(4)
+B(5)
CD GND
TO B MAIN CIRCUIT (W303) (Page 13)
CN304
CD ROUT
CD GND
CD LOUT
CD GND
L IN
GND
R IN
ROUT
GND
LOUT
+B(5)
TO B MAIN CIRCUIT (W304) (Page 13)
CS702
L ch IN
A GND
R ch IN
+B(5)
D GND
LD SW
TX
+B(4)
P GND
MCLK
MDATA
MLD
SENSE
FLOCK
TLOCK
BLKCK
SQCK
SUBQ
D MUTE
STAT
CD RST
SMCK
REST SW
TO D CD CIRCUIT (CS702) (Page 11)
VR303-1 (VOLUME)
VR303-2 (VOLUME)
VR301-1 (TONE)
VR301-2 (TONE)
VR302-1 (XBS)
VR302-2 (XBS)
Q111
Q110
Q211
Q210
Q113
Q213
Q112
Q212
Q113,213
2SC1684HRTA
BUFFER AMP
Q112,212
2SC2001L1TA
VOLUME AMP
Q110,210
2SC1684HSTA
TONE AMP
Q111,211
2SC1684HSTA
XBS/BUFFER AMP
EG ONLY
S413
D402
D403
D404
L401
L402
IC P401

A TUNER P.C.B


IC1
AN7205
FM FRONT END
Q1
2SC829BTA
FM IF AMP
IC2
BA4236L
FM/AM IF AMP
DET, AF AMP &
AM OSC, MIX
IC3
RVIBA1322L
FM MPX
TELESCOPIC ANTENNA
REG
MIX
OSC
RF
FM/AM IF AMP
MUTE
AGC
LEVEL DET
AMDT
LED
AF SW
PHASE DETECTOR
STEREO SWITCH
TRIGGER
DETECTOR
VCO
1/2
CF1
CF2
T1
T2
T3
S1-1
S1-2
S1-3
S1-4
S1-5
S1-6
S1-7
S1-8
W1
ST LED
RCH
LCH
GND
+B
FM ST
TO B MAIN CIRCUIT (CN1) (Page 14)
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8

Notes:

•S1-1~S1-8 : Band select switch in "FM" position.
(F...FM ,L ...LW,M ...MW).
•S301-1~S301-7 : Tape Deck Record switch.
•S302 : FM mode and beat proof switch .(FM MODE/B.P)
•S303 : Tape deck motor switch.
•S304 : Tape deck playback switch.
•S401 : CD play and pause switch.(▶/II)
•S402 : CD stop and clear switch.(■ /CLEAR)
•S403 : CD repeat switch.(REPEAT)
•S404 : Skip/search switch.(I◀◀/◀◀)
•S405 : Skip /search switch.(▶▶/▶▶I)
•S406 : CD edit pause switch.(EDIT PAUSE)
•S407 : CD memory/recall switch.(MEMORY/RECALL)
•S408 : Function select switch.(TAPE)
•S409 : Function select switch.(TUNER/BP)
•S410 : Function select switch.(CD)
•S411 : Power ON/OFF switch in OFF position.(POWER)
•S412 : CD cover open/close detect switch.
•S501 : AC/DC select switch in "DC" position.
•S701 : REST switch.(for CD)
•VR1 : FM VCO adjustment VR.
•VR301 : Tone control VR.(TONE)
•VR302 : XBS control VR.(XBS)
•VR303 : Volume control VR.(VOLUME)
•VR701 : Best Eye Adj. (for CD)

⇨ : **Tuner Signal Line**
➪ : **CD Signal Line**
➡ : **Tape Playback Signal Line**
➡ : **AF Signal Line**
⇢ : **Recording Signal Line**
▬ : **+B Line**
⇨ : **MIC Signal Line**

•DC voltage measurement are taken with electronic voltmeter.
The negative terminal of the battery provides negative meter connection point.

No Mark ...TAPE PLAYBACK [ ]...TAPE RECORDING
< >...FM ( ) ...AM (( )) ...CD ┌ ┘ ...TUNER

•Battery Current :
Vol.min .... 103.1mA (AM) Vol.max........... 790mA (AM)
108.7mA (FM) 1033mA (FM)
140.7mA (PLAYBACK) 1470mA (PLAYBACK)
321mA (CD) 1930mA (CD)

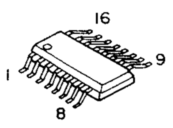
Measurement instruction:
(AM:74dB/m 30%Mod
FM:60dB 30%Mod
TAPE:315Hz, 0dB
CD:1kHz, 0dB)

•Important Safety Notice:
Component identified by ⚠ have special characteristics important for safety.When replacing any of these components,use only manufacturer's specified parts.

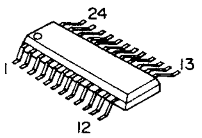
•This schematic diagram may be modified at any time with the development of new technology.

■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

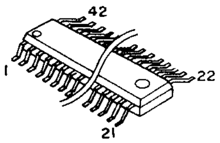
TCA0372DM2R



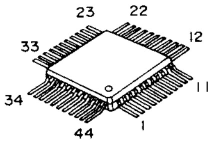
MN6475



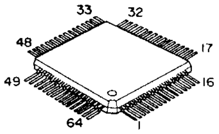
AN8800SCE2



MN6650


23
22
12
33
11
34
44
1

MN6626


33
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48
17
49
16
64
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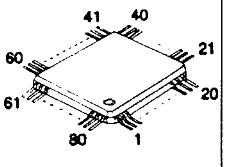
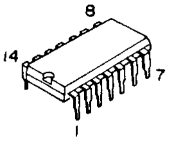
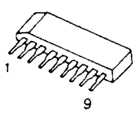
M37410M6H220


41
40
21
60
61
20
80
1

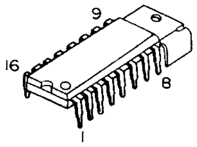
BU4066B



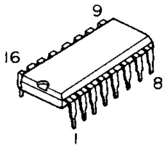
AN7205



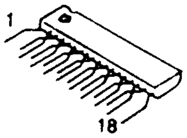
AN8377N



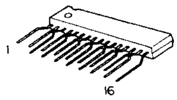
AN7317



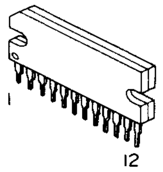
RVIBA4236L



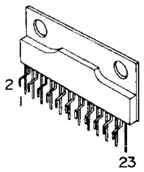
RVIBA1332L



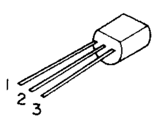
BA3920



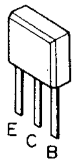
AN7134N-R



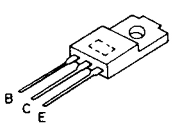
S8054HN-T
S81250PG-T



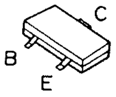
2SC2785FTA

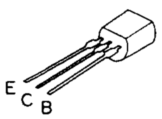


2SB1185E

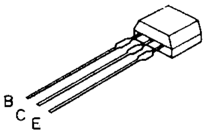


2SB709S

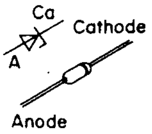




2SA564RTA
2SC1684STA
2SC1685RTA
2SC1684HSTA
2SC1684HRTA
2SC2001L1TA

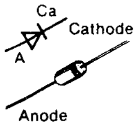


RVTDTA144EST
RVTDTC144EST
RVTDTC114EST

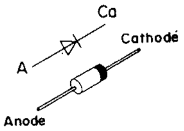

Ca
Cathode
A
Anode

RVDMTZ4R7BTA
RVDMTZ18BTA
RVDMTZ11BTA
RVDMTZ6R8BTA
RVDMTZ6R2BTA

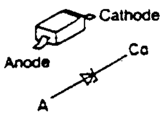
RVD1SS133TA


Ca
Cathode
A
Anode

1N5402BM21


Ca
Cathode
A
Anode

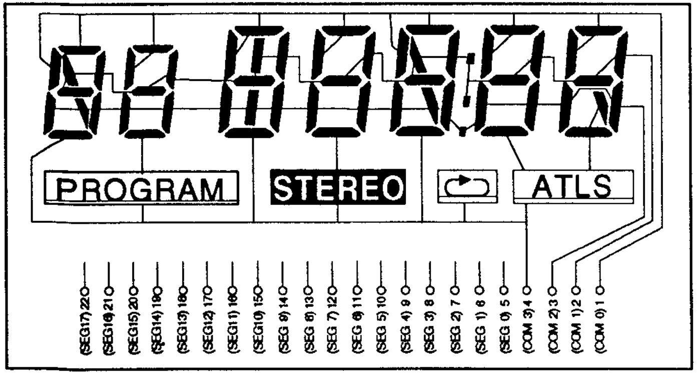
MA110TW


Cathode
Anode
Ca
A

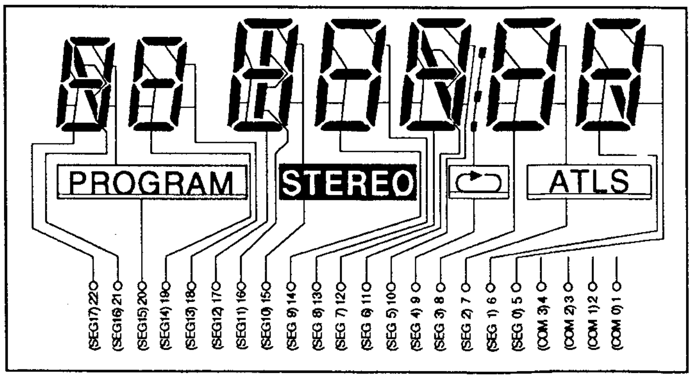
■ INTERNAL CONNECTIONS OF LCD (Liquid Crystal Display)

(Z401: RSL5064-L)

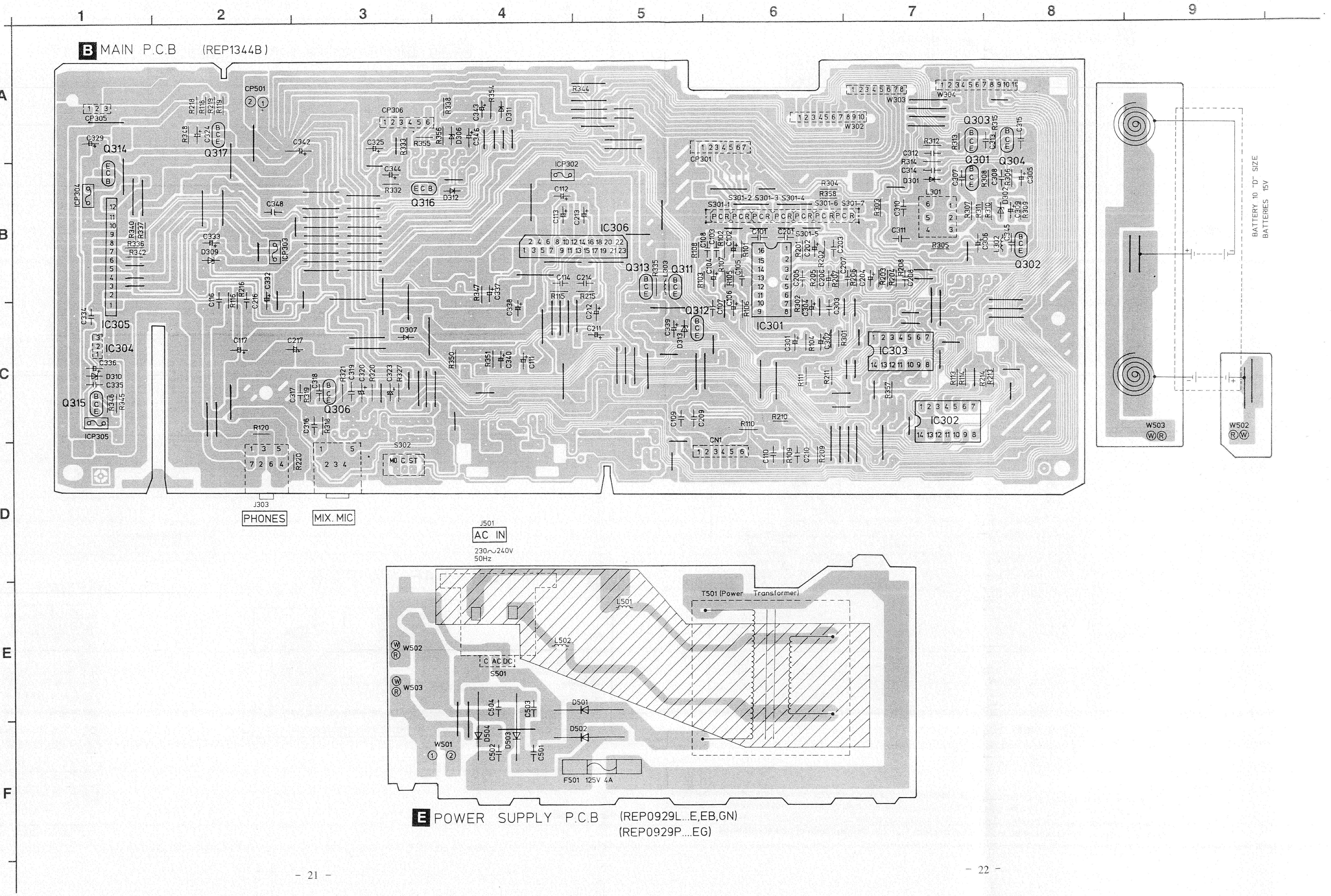
(COMMON)


PROGRAM
STEREO
ATLS
(SEG17)22
(SEG16)21
(SEG15)20
(SEG14)19
(SEG13)18
(SEG12)17
(SEG11)16
(SEG10)15
(SEG 9)14
(SEG 8)13
(SEG 7)12
(SEG 6)11
(SEG 5)10
(SEG 4)9
(SEG 3)8
(SEG 2)7
(SEG 1)6
(SEG 0)5
(COM 3)4
(COM 2)3
(COM 1)2
(COM 0)1

(SEGMENT)


PROGRAM
STEREO
ATLS
(SEG17)22
(SEG16)21
(SEG15)20
(SEG14)19
(SEG13)18
(SEG12)17
(SEG11)16
(SEG10)15
(SEG 9)14
(SEG 8)13
(SEG 7)12
(SEG 6)11
(SEG 5)10
(SEG 4)9
(SEG 3)8
(SEG 2)7
(SEG 1)6
(SEG 0)5
(COM 3)4
(COM 2)3
(COM 1)2
(COM 0)1

■ CIRCUIT BOARD DIAGRAM



B MAIN P.C.B (REP1344B)

E POWER SUPPLY P.C.B (REP0929L...E,EB,GN)
(REP0929P....EG)

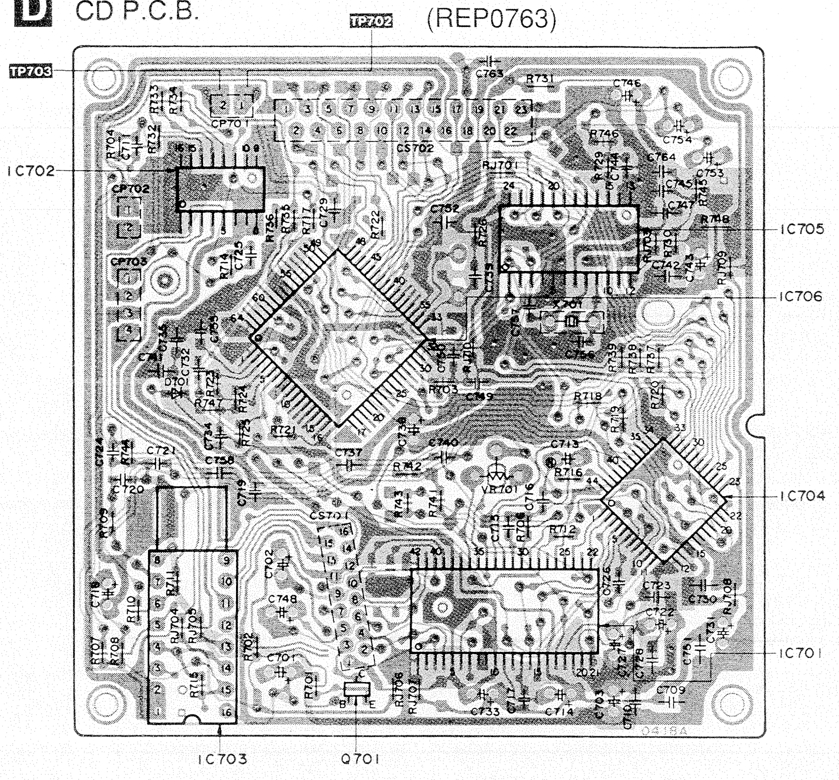
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
CP305
C329
Q314
ICP304
R340
R337
R336
R342
IC305
C334
IC304
C336
D310
C335
Q315
R346
R345
ICP305
R218
R118
R219
R119
R348
C324
Q317
CP501
C333
D309
C116
R116
R216
C216
C332
ICP303
C348
C342
C117
C217
R120
R220
J303
PHONES
CP306
C325
C344
R332
R333
R355
R356
D306
Q316
D312
R338
C343
R354
C346
D311
C317
R319
C318
Q306
C316
R318
R321
C319
C320
R320
C323
R327
S302
MO C ST
MIX. MIC
D307
R347
C337
C338
R350
R351
C340
C111
R344
ICP302
C112
C113
C213
IC306
C114
C214
R115
R215
C212
C211
Q313
R335
L303
Q311
Q312
C339
D313
CP301
C109
C209
CN1
R110
R210
C110
R109
C210
R209
W302
W303
W304
S301-1
S301-2
S301-3
S301-4
S301-5
S301-6
S301-7
R304
R358
R303
R108
C108
C103
R102
C102
R101
C101
C201
R201
C202
R202
C203
C104
R107
C105
R103
R105
C106
R106
C107
IC301
R302
C304
C303
C205
R205
C206
R206
C207
R207
C204
R203
R204
R208
C208
R301
C301
R104
C302
IC303
R111
R211
R357
IC302
R113
R114
R214
R212
Q303
R315
C315
R312
R313
C313
C312
R314
C314
D301
Q301
Q304
C307
R308
C308
R306
C305
L301
C310
C311
R305
R307
R311
R310
D302
R309
C309
C345
C306
L302
Q302
BATTERY 10 "D" SIZE BATTERIES 15V
W503
W502
J501
AC IN
230～240V 50Hz
L501
L502
T501 (Power Transformer)
W502
W503
C AC DC
S501
D501
D502
C504
C503
D504
D503
C502
C501
W501
F501 125V 4A

■ CIRCUIT BOARD DIAGRAM

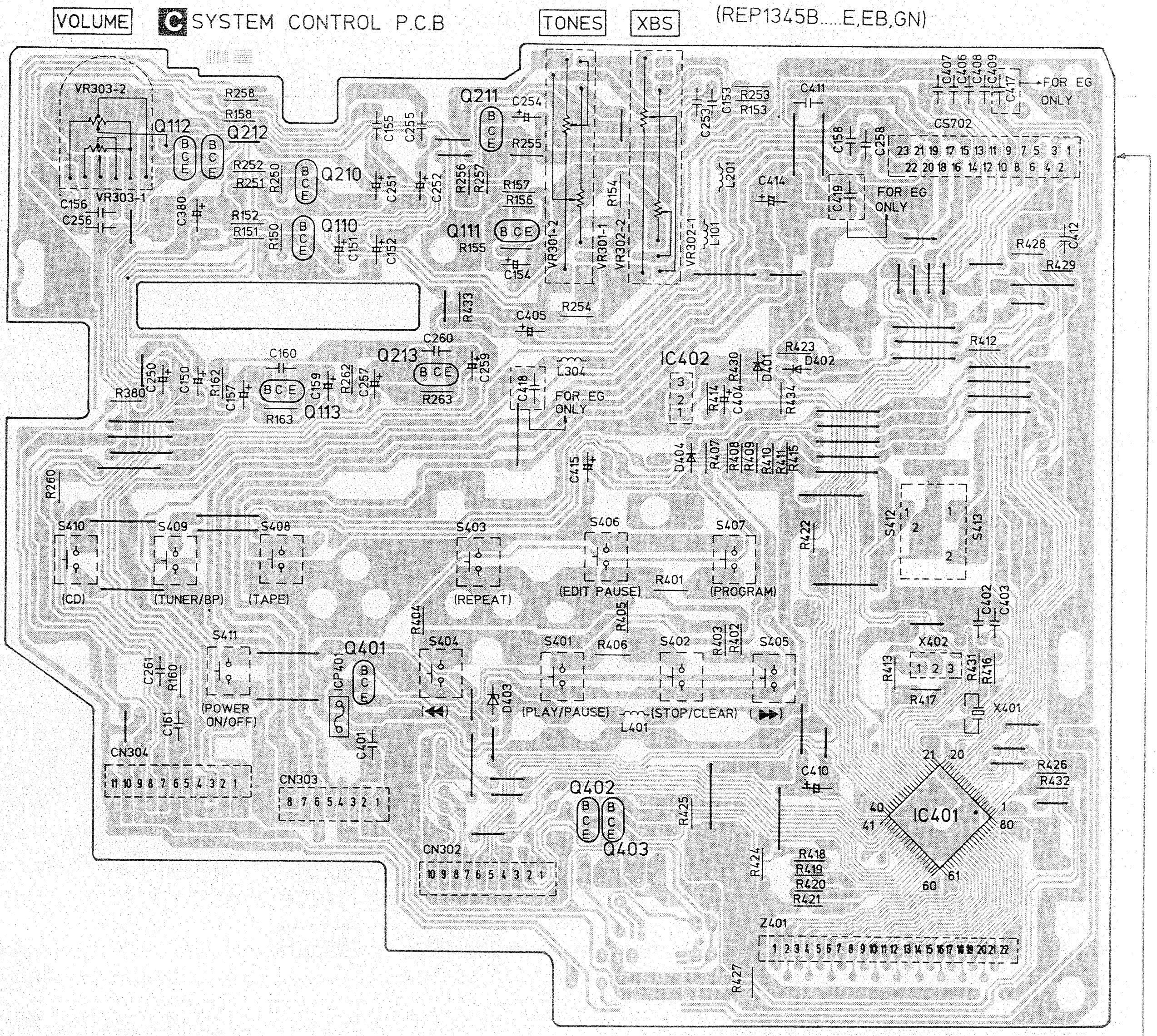
1 2 3 4 5 6 7 8 9

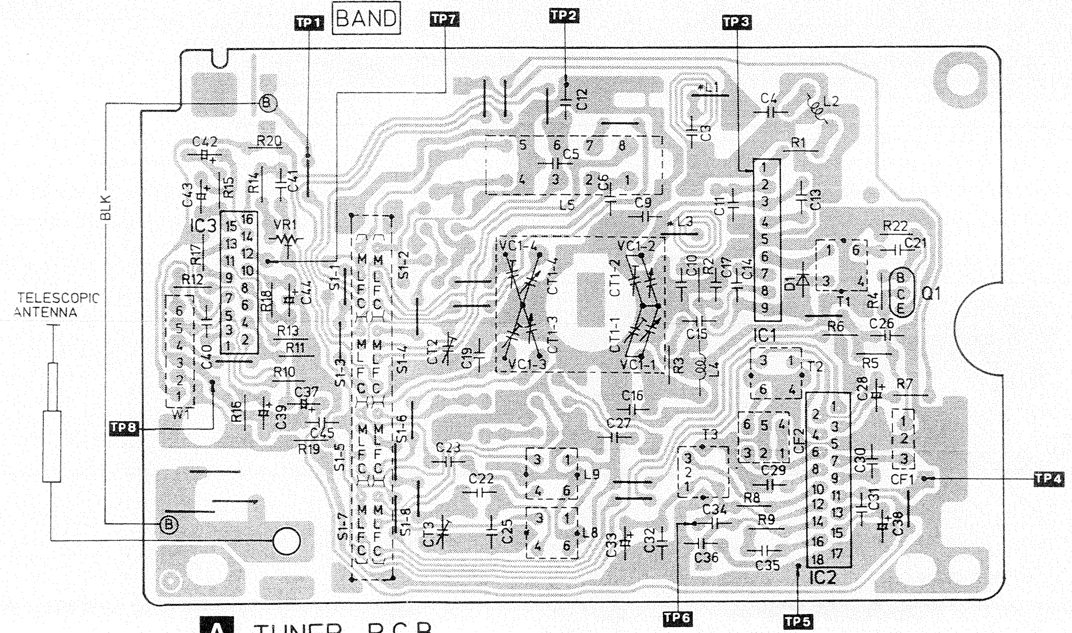
A B C D E F

D CD P.C.B. (REP0763)


TP702
TP703
IC702
IC705
IC706
IC704
IC701
IC703
Q701
CP701
CS702
CP702
CP703
VR701

C SYSTEM CONTROL P.C.B (REP1345B.....E,EB,GN)

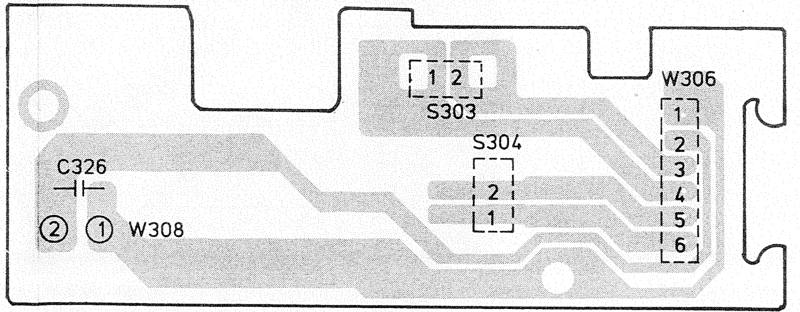

VOLUME
TONES
XBS
VR303-2
VR303-1
Q112
Q212
Q210
Q110
Q211
Q111
Q213
Q113
VR301-2
VR301-1
VR302-2
VR302-1
IC402
FOR EG ONLY
CS702
S410
S409
S408
S403
S406
S407
S412
S413
(CD)
(TUNER/BP)
(TAPE)
(REPEAT)
(EDIT PAUSE)
(PROGRAM)
S411
Q401
S404
S401
S402
S405
(POWER ON/OFF)
(PLAY/PAUSE)
(STOP/CLEAR)
X402
X401
CN304
CN303
CN302
Q402
Q403
IC401
Z401
→FOR EG ONLY


TP1
BAND
TP7
TP2
TP3
TELESCOPIC ANTENNA
BLK
TP8
TP4
TP6
TP5
IC3
IC1
IC2
Q1
VR1
CF1
CF2
VC1-1
VC1-2
VC1-3
VC1-4
CT1-1
CT1-2
CT1-3
CT1-4

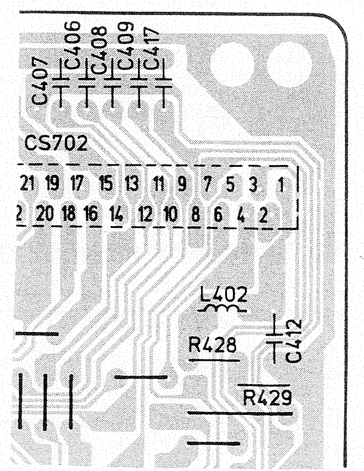
A TUNER P.C.B

(REP0933P....E,EB,GN)
(REP0933Q...EG)

F MECHANISM LEAF SW P.C.B


S303
S304
W306
C326
W308

(REP1345E.....EG)


C407
C406
C408
C409
C417
CS702
L402
R428
C412
R429

FOR EG ONLY

Notes:

1. The circuit shown in ( ) on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in ( ) on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols (●) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.

•The circuit board diagram may be modified at any time with the development of new technology.

■ FUNCTIONS OF IC TERMINALS

● IC401 (M37410M6H220)

Pin No.	Mark	Function
1	S19	———
2	BATT	Battery state signal ouput
3	KEY3	GND
4	KEY2	Key source
5	KEY1	GND
6	AVSS	GND
7	VREF	A/D converter reference voltage
8	VDD	Power supply (+5V)
9	PLL DATA	PLL tuner data signal output
10	PLL CLK	PLL tuner clock signal output
11	PLL CE	PLL tuner strove signal output
12	SW	———
13	MONO	GND
14	STEREO	Tuner stereo signal input
15	SD	Auto-stop signal detect input
16	BLKCK	CD subcode block clock signal input
17	REST SW	Reset switch signal input
18	SQCK	CD subcode clock output
19	NC	———
20	SUBQ	CD subcode data input
21	MCLK	CD signal process IC control signal output
22	CD RST	CD reset signal output
23	Xc IN	Clock input (32KHz)
24	Xc OUT	Clock output (32KHz)
25	POWER	Main switch control signal input
26	CNVSS	GND
27	RST	Power on reset signal input
28	XIN	Clock input (4MHz)
29	XOUT	Clock output (4MHz)
30	VSS	GND
31	MP1	———
32	MP2	———
33	MLD	CD signal process strove signal output
34	MDATA	CD signal process IC data output
35	SENSE	CD sense signal input
36	FLOCK	CD focus lock signal input
37	TLOCK	CD tracking signal input
38	STAT	CD status signal input
39	CLOSE	CD cover open/close detection signal input
40	TUN	Input selector control signal output (TUNER)
41	CD	Input selector control signal output (CD)
42	TAPE	Input selector control signal output (TAPE)
43	FUNCTION	Power supply control signal output
44	POWER CONT	Power AMP control signal output
45	ATT	———
46	—	———
47	REC	REC detecting signal input
48 ~ 50	R3 ~ R1	Region select signal input
51	MUTE A	AF muting signal output
52	MCD OUT	CD line out control (Muting)
53	BP1	Beat proof
54	BP2	GND
55	VL3	LCD bias reference voltage V3
56	VL2	LCD bias reference voltage V2
57	VL1	LCD bias reference voltage V1
58 ~ 61	COM0 ~ COM3	LCD common signal output
62 ~ 79	S0 ~ S17	LCD segment signal output
80	S18	———

■ FUNCTION OF IC TERMINALS

● IC 701 (AN8800SCE2)

Pin No.	Mark	I/O Division	Function
1	LDG	I	+5 V input
2	LDP	—	——
3	LD	O	Laser power control output
4	LPD	I	Laser power monitor input
5	GND	—	Ground terminal
6	LDON	I	Laser power control input
7	AMPI	I	RF signal input
8	AMPO	O	RF signal output
9	RFIN	I	RF signal input
10	RFEQ	—	Ground
11	C.AGC	I	AGC detecting capacitor input
12	ARF	O	RF signal output
13	C.SBDO	I	Dropout detecting capacitor input
14	RFDET	O	RF detections signal output
15	BDO	O	Black dropout detection output
16	VCC	I	Power supply (+5 V input)
17	SDO	O	System dropont detection output
18	VAD+	O	A/D converter reference voltage output
19	VREF	O	Reference voltage output
20	VAD−	O	A/D converter reference voltage output
21	OFTR	O	Off track detection output
22	PLAY	I	Play signal input
23	WVEL	I	High speed signal input
24	TES	I	Tracking error signal input
25	PTO	—	——
26	PTI	I	Traverse speed detection signal input
27	PBO	—	——
28	POT	I	Position detecting buffer input
29	CROSS	O	Tracking error cross detection output
30	TE	O	Tracking error output
31	TEBAL	I	Tracking error gain detecting filter input
32	TBAL	I	Tracking balance adjustment
33	VDET	O	Vibration detection signal ouput
34	FE	O	Focus error output
35	EBL2	I	Focus balance adjustment
36	FBL1		
37	VCC	I	Power supply (+5 V input)
38	GND	—	Ground
39	PDBD	I	Photo detector current input
40	PDA	I	
41	PDAD	I	
42	PDB	I	

● IC702 (TCA0372DM2R)

Pin No.	Mark	I/O Division	Function
1	GND	—	Ground
2	NC	—	——
3	VOUT1	O	Spindle motor control output
4	VCC	I	Power supply (+7.5 V input)
5	VOUT2	O	Spindle motor control output
6	NC	—	——
7	NC	—	——
8	GND	—	Ground
9	GND	—	Ground
10	NC	—	——
11	−VIN2	I	Spinde motor control input
12	+VIN2		
13	+VIN1		
14	−VIN1		
15	NC	—	——
16	GND	—	Ground

•IC703 (AN8377N): Motor Drive

Pin No.	Mark	I/O Division	Function
1	PVCC	I	Driver power supply (+8.9 input)
2	VCC	I	Power supply (+8.9 V input)
3	TB	O	External transistor base driving output
4	VMON	O	Voltage output
5	TVDI	I	Traverse error signal input
6	FDI	I	Focus error signal input
7	TDI	I	Tracking error signal input
8	VREF	I	Reference voltage input
9	TD−	O	Inverting output of tracking driver
10	TD+	O	Non-inverting output of tracking driver
11	FD−	O	Inverting output of focus driver
12	FD+	O	Non-inverting output of focus driver
13	TVD−	O	Inverting output of traverse driver
14	TVD+	O	Non-inverting output of traverse driver
15	RESET	O	Reset signal output
16	PC	I	PC input (connect to GND)

•IC706 (MN6626)

Pin No.	Mark	I/O Division	Function
1	AVSS	—	Ground
2	IREF	I	Reference current input
3	ARF	I	RF signal input
4	DRF	I	DSL bias input
5	DSLF	O	DSL loop filter
6	PLLF	I	PLL loop filter
7	AVDD	I	Power supply (+5 V input)
8	RSEL	I	+5 V input
9 ≀ 16	TBUS7 ≀ TBUSO	—	Test terminal (Ground)
17	FLAG	—	——
18	IPFLAG		
19	FCLK		
20	BTYCK		
21	WDCK		
22	/RST	I	Reset signal input
23	TX	O	Digital audio interface signal output
24	LDG	—	——
25	RDG		
26	SRDATA	O	Serial data output
27	SCK	O	Serial bit clock output
28	LRCK	O	Clock output
29	XCK	O	Clock output (f=16.9344 MHz)
30	PMCK	—	——
31	CSEL	I	+5 V input
32	PSEL	—	Ground
33	×1	I	Clock input (f=16.9344 MHz)
34	×2	—	——
35	VSS	—	Ground
36	SUBQ	O	Sub-code (Q data) output
37	SQCK	I	Sub-code (Q data) clock input f=7.3 kHz
38	/CLDCK	—	——
39	BLKCK	O	Sub-code block (Q data) clock f=75 Hz
40	DEMPH	O	De-emphasis ON signal output
41	MEMP	I	Enphasis signal input
42	MLD	I	Command load signal input
43	MCLK	I	Command clock signal input
44	MDATA	I	Command data input
45	DMUTE	I	Muting control signal input
46	SMCK	O	Clock output (f=4.2336 MHz)
47	STAT	O	Status signal output
48	CRC	—	——
49	SUBC	—	——
50	SBCK	I	Clock for sub-code serial output
51	/TRON	I	Tracking servo ON signal input
52	CLVS	O	Spindle servo signal output
53	PC	—	——
54	ECM	O	Spindle motor control signal output
55	ECS	O	Spindle motor control signal output
56	VDD	I	Power supply (+5 V input)
57	/TEST	I	+5 V input
58	SSEL	I	+5 V input
59	MSEL	—	——
60	RESY	—	——
61	DO	I	Drop out signal input
62	EFM	—	——
63	PCK		
64	PDO		

•IC704 (MN6650)

Pin No.	Mark	I/O Division	Function
1	TES	O	Tracking error signal output
2	PLAY	O	Play signal output
3	RFDET	I	RF detection signal input
4	DO	I	Dropout signal input
5	OFT	I	Off track signal input
6	ARF	I	RF signal input
7	WVEL	O	High speed status signal output
8	PBO	I	Potension buffer signal input
9	TE	I	Tracking error signal input
10	FE	I	Focus error signal input
11	VR2	I	A/D reference voltage input
12	VR1	I	A/D reference voltage input
13	LDON	O	Laser power control signal output
14	VSS	—	Ground
15	AVSS	—	Ground
16	AVDD	I	Power supply (+5 V input)
17	VDD	I	Power supply (+5 V input)
18	TRV	O	Traverse servo control output
19	VTD	O	Traverse drive output
20	FOD	O	Focus drive output
21	TRD	O	Tracking drive output
22	KICK	O	Track kick signal output
23	/TEST	I	+5 V input
24	VSS	—	Ground
25	CLVS	I	Spindle servo signal input
26	/TRON	O	Tracking servo signal output
27	MDATA	I	Command data input
28	MCLK	I	Command clock signal input
29	MLD	I	Command load signal input
30	SENSE	O	Sense signal output
31	/FLOCK	O	Focus servo signal output
32	/TLOCK	I	Tracking servo signal output
33	/RST	I	Reset signal input (L: Reset)
34	XI	I	Clock input (fXI=16.9344 MHz)
35	TO	—	Open
36	T1		
37	T2		
38	T3		
39	T4	—	Ground
40	T5		
41	T6		
42	VDET	I	Vibration detecting signal input
43	TBAL	O	Tracking balance adjustment output
44	TRCRS	I	Track cross signal input

•IC705 (MN6475)

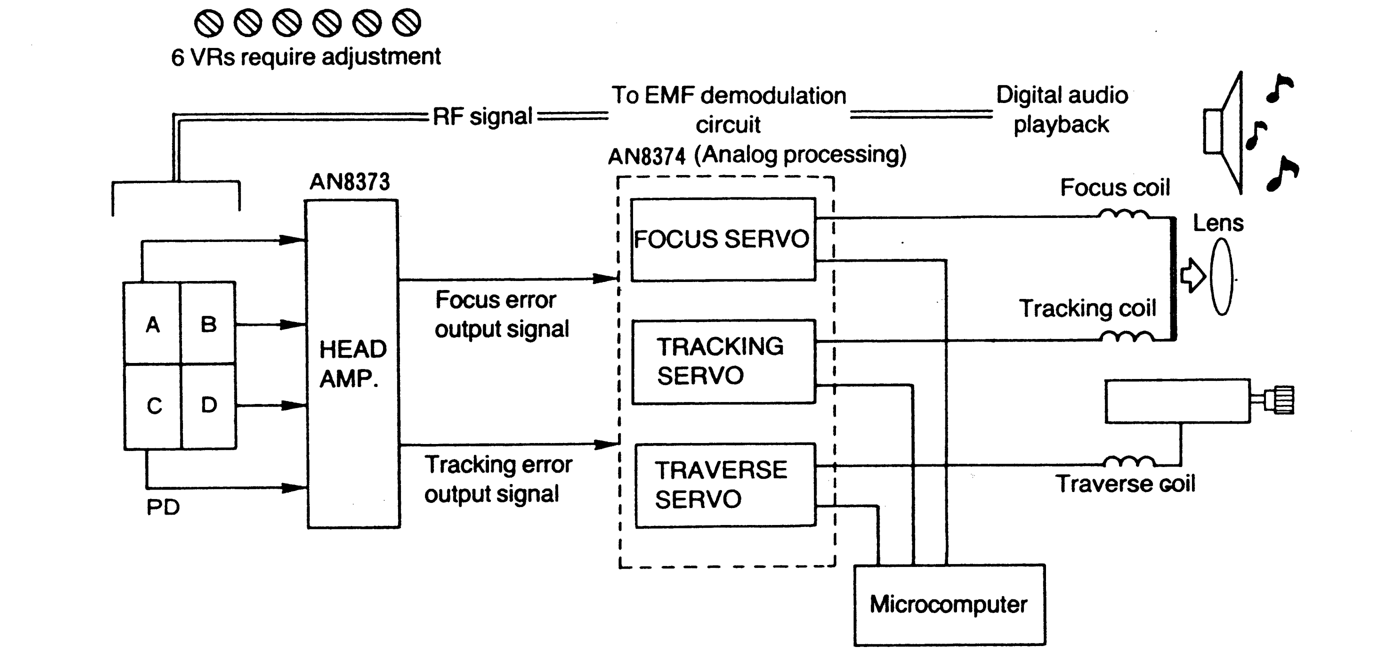
Pin No.	Mark	I/O Division	Function
1	LRCK	I	Clock input
2	BCLK	I	Serial data bit clock input
3	SRDATA	I	Serial data input
4	COT1	—	Ground
5	COT2		
6	TEST		
7	VDD	I	Power supply (+5 V input)
8	X2	—	Clock (f=33.8688 MHz)
9	X1		
10	VSS	—	Ground
11	AVDDL	I	Power supply (+5 V input)
12	OUT.L	O	AF signal output (Lch)
13	AVSS.L	—	Ground
14	AVSS.R	—	Ground
15	OUT.R	O	AF signal output (Rch)
16	AVDD.R	I	Power supply input
17	/RST	I	Reset signal input
18	PWM	—	——
19	TP	—	Ground
20	WVEL	I	High speed status signal input
21	DEMPH	I	De-emphasis signal input
22	CSEL	I	+5 V input
23	192FS	—	——
24	768FS	O	Clock output (f=16.9344 MHz)

■ DIGITAL SERVO SYSTEM

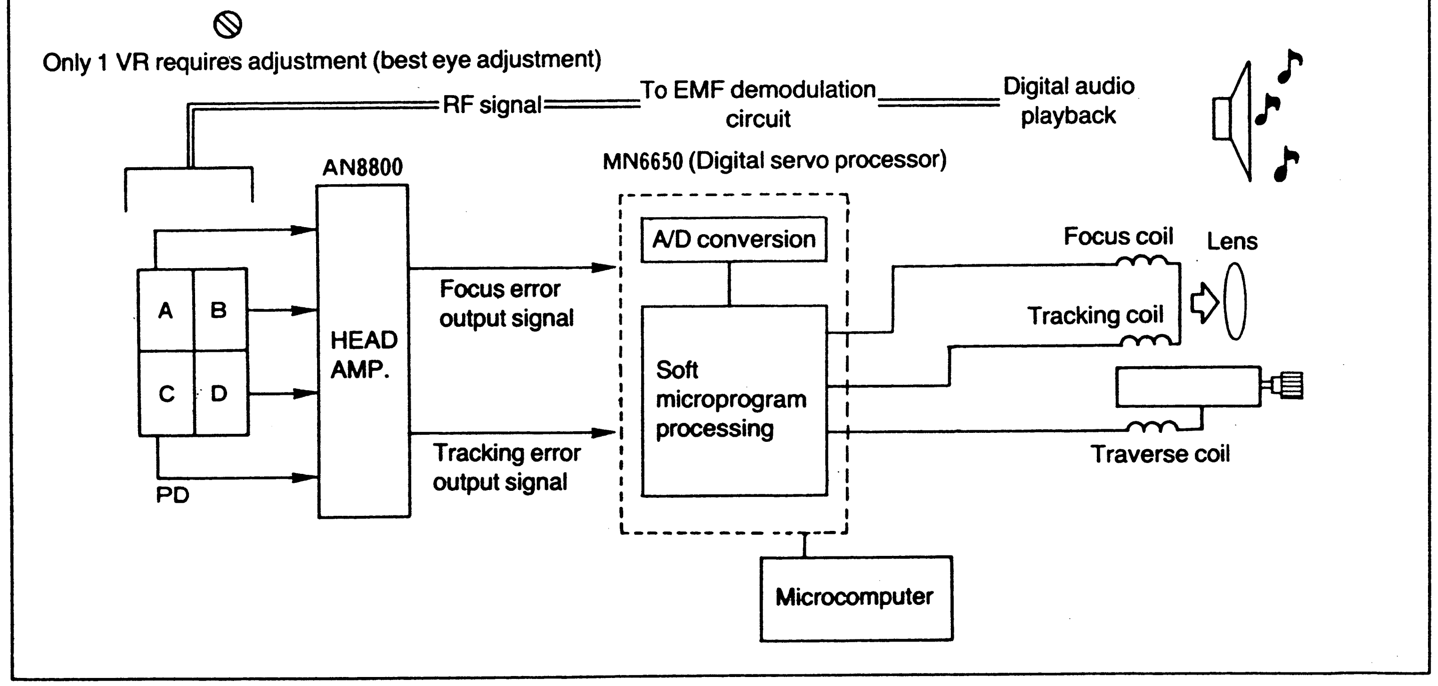
The newly-developed digital servo system is adopted in the servo circuit of the unit's CD player instead of the ordinary analog servo system.

1. The diagrams shown below represent differences between the analog servo and digital servo systems. The HEAD AMP. output signals (i.e., focus error and tracking error output signals) are analog. These analog signals are converted to the 8-bit digital signals through the MN6650. The MN6650 performs the following adjustments automatically; focus offset, tracking offset, focus gain, tracking gain, and tracking balance adjustments. The outputs from the MN6650 such as the focus coil driving signal, tracking coil driving signal, and traverse motor driving signal are converted to analog signals again and sent to the coils and motor to perform proper servo control for a disc.

ANALOG SERVO SYSTEM


⊘ ⊘ ⊘ ⊘ ⊘ ⊘
6 VRs require adjustment
RF signal
To EMF demodulation circuit
Digital audio playback
AN8374 (Analog processing)
AN8373
Focus coil
Lens
FOCUS SERVO
A
B
C
D
HEAD AMP.
Focus error output signal
Tracking coil
TRACKING SERVO
Tracking error output signal
TRAVERSE SERVO
Traverse coil
PD
Microcomputer

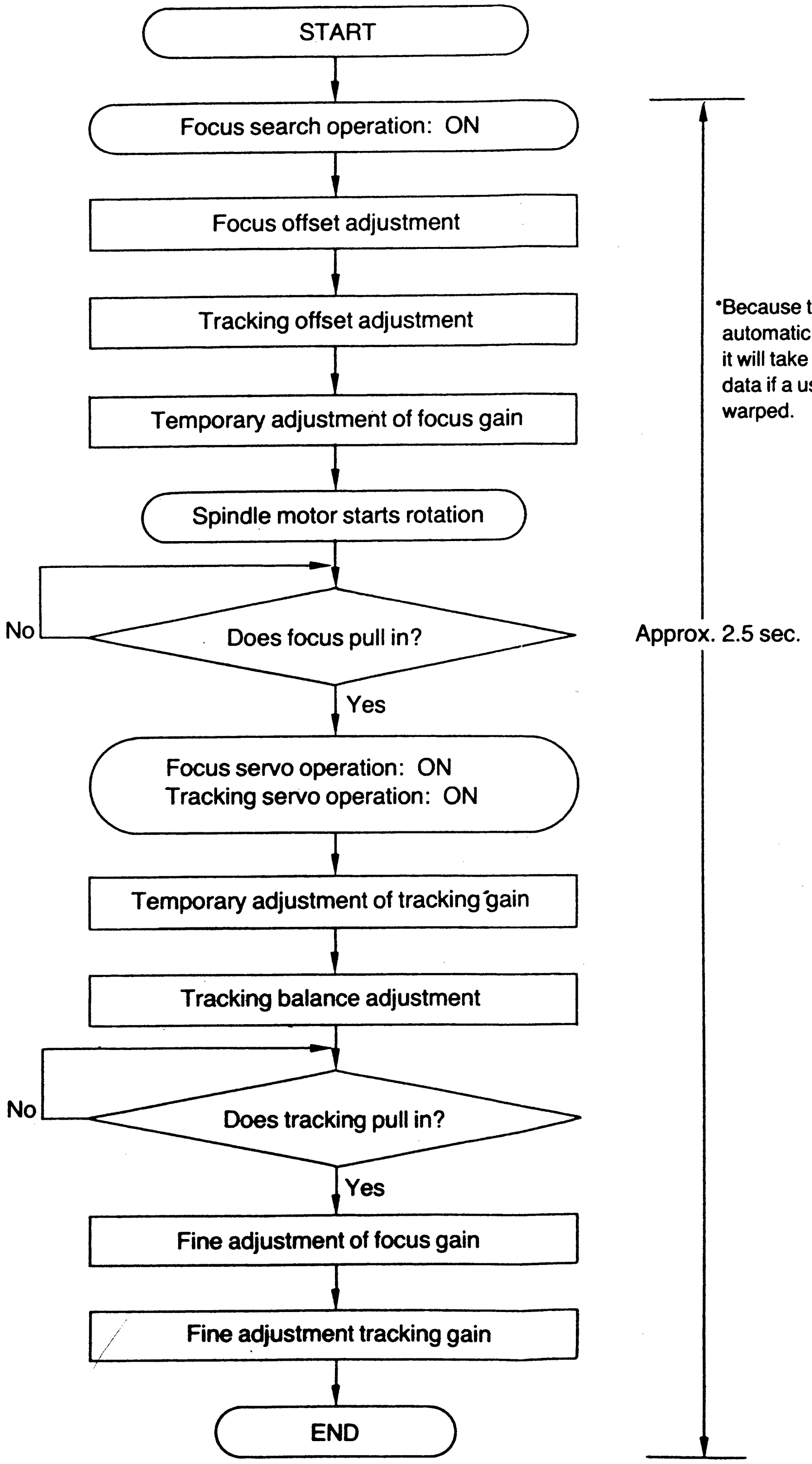
DIGITAL SERVO SYSTEM


⊘
Only 1 VR requires adjustment (best eye adjustment)
RF signal
To EMF demodulation circuit
Digital audio playback
AN8800
MN6650 (Digital servo processor)
A/D conversion
Focus coil
Lens
A
B
C
D
HEAD AMP.
Focus error output signal
Tracking coil
Soft microprogram processing
Tracking error output signal
Traverse coil
PD
Microcomputer

2. The servo processor IC MN6650 of the newly-developed digital servo circuit automatically performs the following adjustments which were originally adjusted in the conventional analog servo circuit:
(1) Focus offset, (2) Tracking offset, (3) Focus gain, (4) Tracking gain, and (5) Tracking balance. Therefore, you do not have to perform not the above-mentioned electrical adjustments manually. Only the best eye (PD balance) needs to be adjusted adjustment. You can obtain an optimum servo control for a disc to be played.
[You must perform the best eye (PD balance) adjustment manually.]

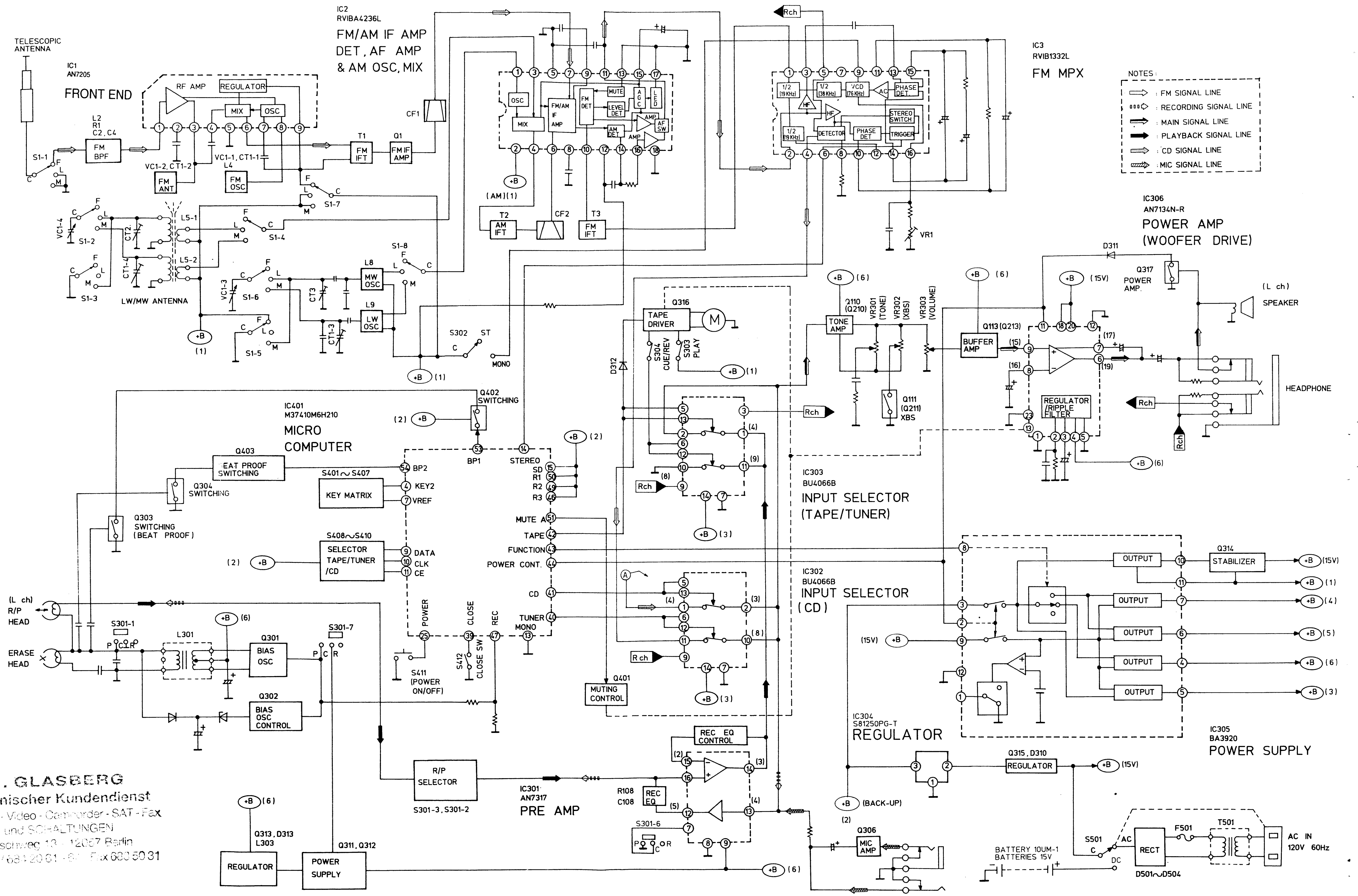
The following flow chart shows the sequence of automatic adjustments.

●Flow chart on automatic adjustment sequence


START
Focus search operation: ON
Focus offset adjustment
Tracking offset adjustment
Temporary adjustment of focus gain
Spindle motor starts rotation
No
Does focus pull in?
Yes
Focus servo operation: ON
Tracking servo operation: ON
Temporary adjustment of tracking gain
Tracking balance adjustment
No
Does tracking pull in?
Yes
Fine adjustment of focus gain
Fine adjustment tracking gain
END
Approx. 2.5 sec.

*Because the microcomputer precisely performs automatic adjustments as shown in the flow chart, it will take approx. 5 seconds to finish reading TOC data if a used disc is eccentric one or its surface is warped.

■ BLOCK DIAGRAM : OVERALL CIRCUIT EXCEPT CD


TELESCOPIC ANTENNA
IC1 AN7205
FRONT END
RF AMP
REGULATOR
MIX
OSC
L2 R1 C2, C4
FM BPF
S1-1
VC1-2, CT1-2
VC1-1, CT1-1
L4
FM ANT
FM OSC
T1
FM IFT
Q1
FM IF AMP
CF1
S1-7
VC1-4
S1-2
CT2
L5-1
L5-2
S1-4
S1-3
CT1-4
LW/MW ANTENNA
VC1-3
S1-6
S1-5
CT3
CT1-3
L8
MW OSC
L9
LW OSC
S1-8
S302
ST
MONO
IC2 RVIBA4236L
FM/AM IF AMP DET, AF AMP & AM OSC, MIX
FM/AM IF AMP
FM DET
MUTE
AGC
LED
LEVEL DET
AM DET
AMP
AF SW
(AM)(1)
T2
AM IFT
CF2
T3
FM IFT
Rch
IC3 RVIB1332L
FM MPX
1/2 (19KHz)
1/2 (38KHz)
VCO (76KHz)
AC
PHASE DET.
HF
LPF
STEREO SWITCH
DETECTOR
PHASE DET
TRIGGER
VR1
NOTES:
: FM SIGNAL LINE
: RECORDING SIGNAL LINE
: MAIN SIGNAL LINE
: PLAYBACK SIGNAL LINE
: CD SIGNAL LINE
: MIC SIGNAL LINE
IC306 AN7134N-R
POWER AMP (WOOFER DRIVE)
D311
Q317
POWER AMP.
(L ch)
SPEAKER
HEADPHONE
Q110 (Q210)
TONE AMP
VR301 (TONE)
VR302 (XBS)
VR303 (VOLUME)
Q111 (Q211) XBS
Q113 (Q213)
BUFFER AMP
REGULATOR /RIPPLE FILTER
(15V)
Q316
TAPE DRIVER
M
S304 CUE/REV
S303 PLAY
D312
IC303 BU4066B
INPUT SELECTOR (TAPE/TUNER)
IC302 BU4066B
INPUT SELECTOR (CD)
Q401
MUTING CONTROL
IC401 M37410M6H210
MICRO COMPUTER
Q402 SWITCHING
BP1
STEREO
Q403
HEAT PROOF SWITCHING
BP2
S401～S407
KEY MATRIX
KEY2
VREF
Q304 SWITCHING
Q303 SWITCHING (BEAT PROOF)
S408～S410
SELECTOR TAPE/TUNER /CD
DATA
CLK
CE
SD
R1
R2
R3
MUTE A
TAPE
FUNCTION
POWER CONT.
CD
TUNER MONO
POWER
CLOSE
REC
S411 (POWER ON/OFF)
S412 CLOSE SW
(L ch) R/P HEAD
ERASE HEAD
S301-1
L301
Q301
BIAS OSC
S301-7
Q302
BIAS OSC CONTROL
R/P SELECTOR
S301-3, S301-2
IC301 AN7317
PRE AMP
REC EQ CONTROL
R108 C108
REC EQ
S301-6
Q313, D313 L303
REGULATOR
Q311, Q312
POWER SUPPLY
Q306
MIC AMP
IC304 S81250PG-T
REGULATOR
Q314
STABILIZER
OUTPUT
IC305 BA3920
POWER SUPPLY
Q315, D310
REGULATOR
+B (BACK-UP)
S501
AC
DC
RECT
F501
T501
AC IN 120V 60Hz
BATTERY 10UM-1 BATTERIES 15V
D501～D504
+B (1)
+B (2)
+B (3)
+B (4)
+B (5)
+B (6)
+B (15V)

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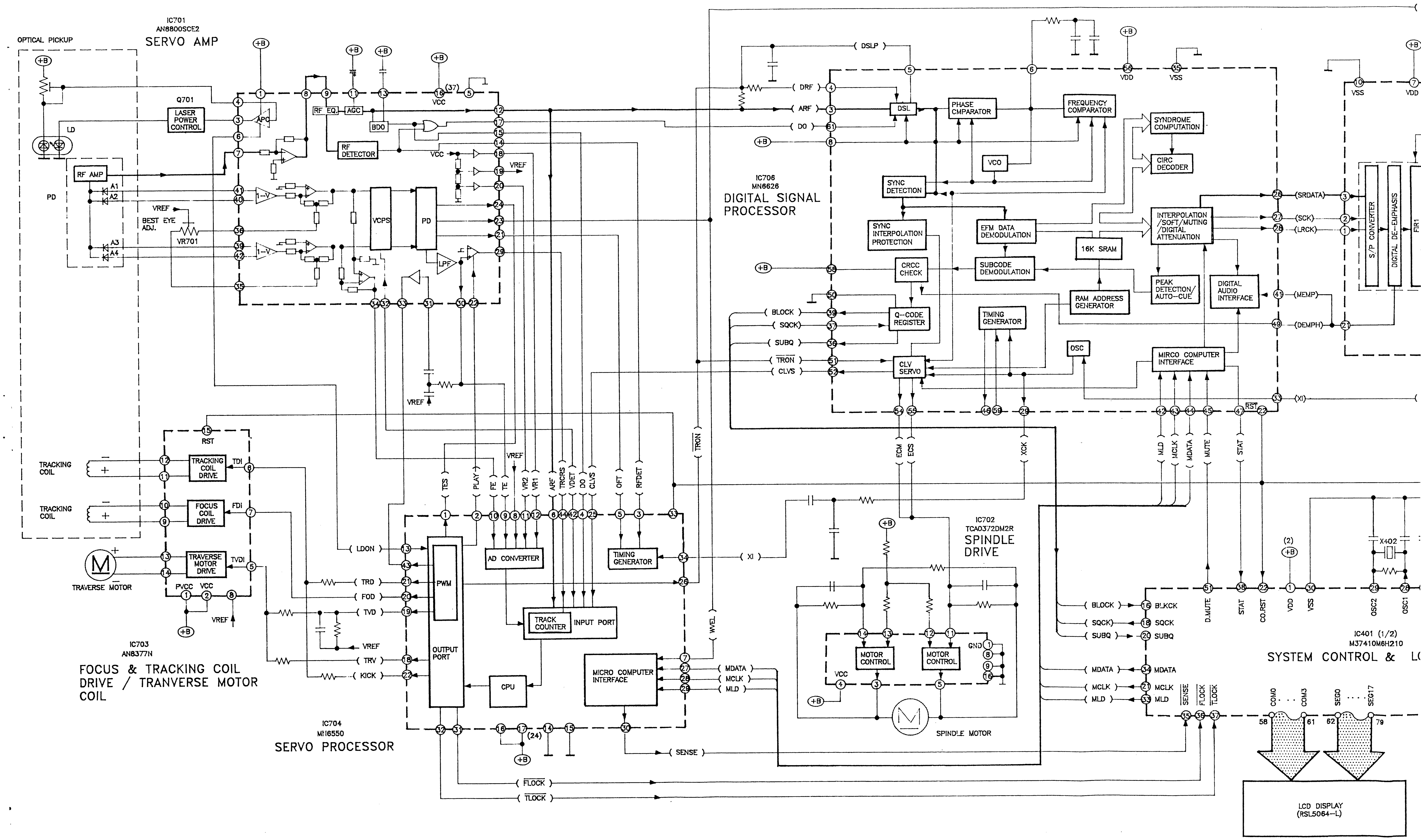
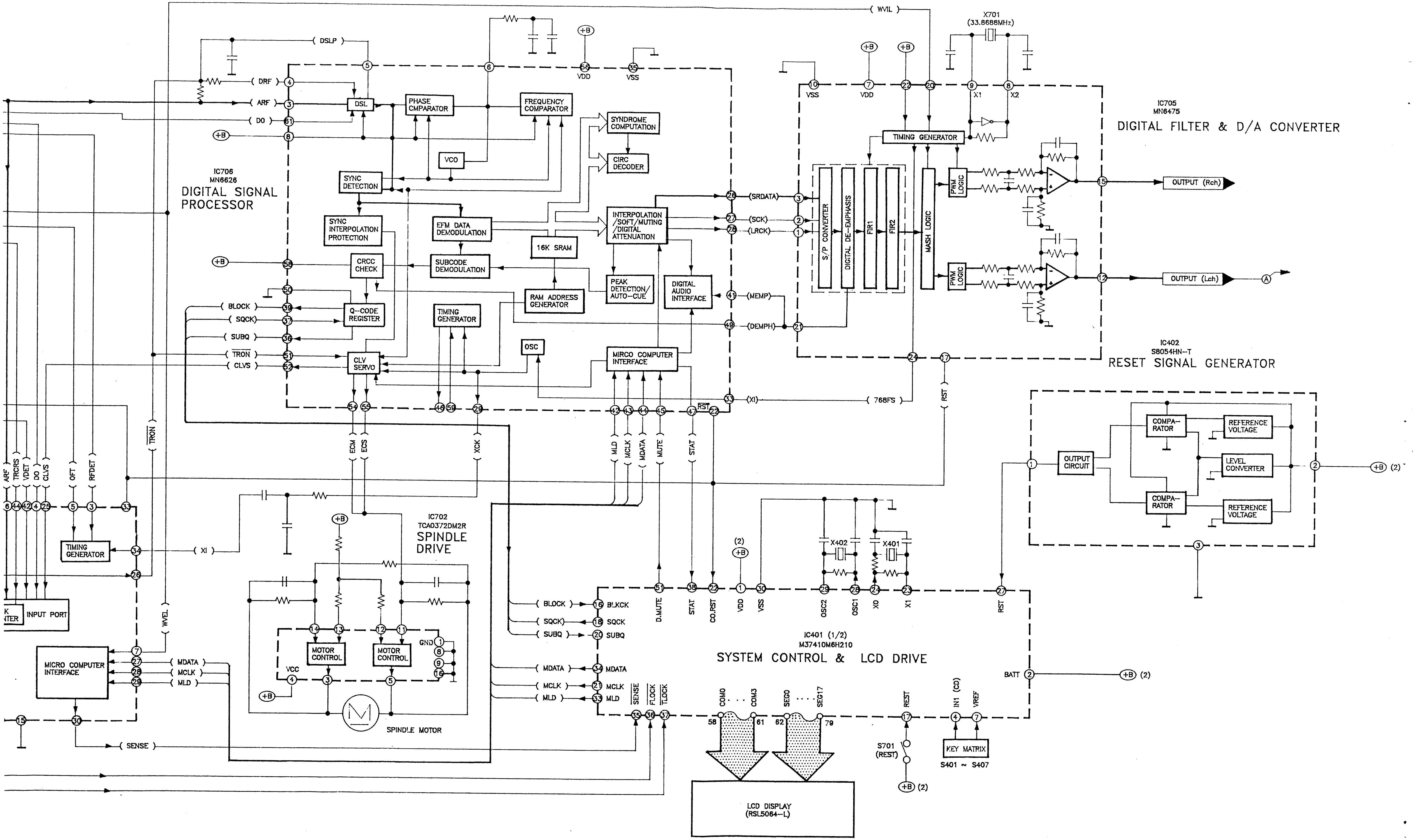
Boschweg 13 · 12057 Berlin
Tel. 030 / 684 20 61 - 6 · Fax 680 50 31

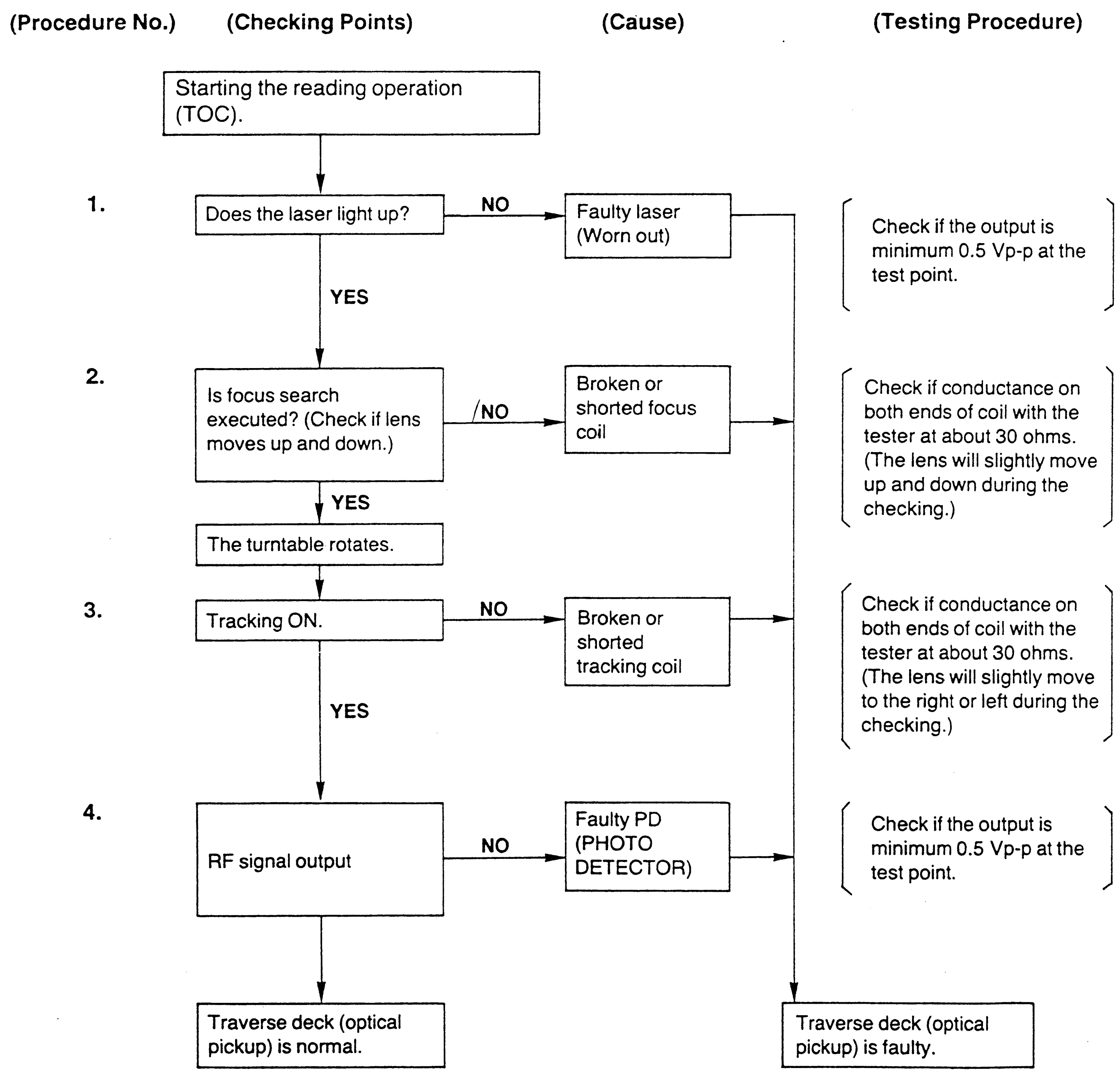
■ BLOCK DIAGRAM : CD CIRCUIT


OPTICAL PICKUP
IC701
AN8800SCE2
SERVO AMP
Q701
LASER POWER CONTROL
APC
LD
PD
RF AMP
A1
A2
A3
A4
VREF
BEST EYE ADJ.
VR701
RF EQ.
AGC
BDO
RF DETECTOR
VCC
VCPS
PD
LPF
VREF
TRACKING COIL
FOCUS COIL
TRAVERSE MOTOR
RST
TRACKING COIL DRIVE
TDI
FOCUS COIL DRIVE
FDI
TRAVERSE MOTOR DRIVE
TVDI
PVCC
VCC
IC703
AN8377N
FOCUS & TRACKING COIL DRIVE / TRANVERSE MOTOR COIL
TES
PLAY
FE
TE
VR2
VR1
ARF
TRCRS
VDET
DO
CLVS
OFT
RFDET
TRON
WVEL
LDON
TRD
FOD
TVD
TRV
KICK
PWM
OUTPUT PORT
AD CONVERTER
TIMING GENERATOR
TRACK COUNTER
INPUT PORT
CPU
MICRO COMPUTER INTERFACE
XI
MDATA
MCLK
MLD
SENSE
FLOCK
TLOCK
IC704
MN6550
SERVO PROCESSOR
DSLP
DRF
ARF
DO
IC706
MN6626
DIGITAL SIGNAL PROCESSOR
DSL
PHASE CMPARATOR
FREQUENCY COMPARATOR
VCO
VDD
VSS
SYNDROME COMPUTATION
CIRC DECODER
SYNC DETECTION
SYNC INTERPOLATION PROTECTION
EFM DATA DEMODULATION
16K SRAM
INTERPOLATION /SOFT/MUTING /DIGITAL ATTENUATION
SUBCODE DEMODULATION
CRCC CHECK
RAM ADDRESS GENERATOR
PEAK DETECTION/ AUTO-CUE
DIGITAL AUDIO INTERFACE
BLOCK
SQCK
SUBQ
TRON
CLVS
Q-CODE REGISTER
TIMING GENERATOR
OSC
CLV SERVO
MIRCO COMPUTER INTERFACE
SRDATA
SCK
LRCK
MEMP
DEMPH
XI
RST
ECM
ECS
XCK
MLD
MCLK
MDATA
MUTE
STAT
IC702
TCA0372DM2R
SPINDLE DRIVE
MOTOR CONTROL
MOTOR CONTROL
GND
SPINDLE MOTOR
S/P CONVERTER
DIGITAL DE-EMPHASIS
FIR
X402
BLKCK
SQCK
SUBQ
MDATA
MCLK
MLD
D.MUTE
STAT
CO.RST
VDD
VSS
OSC2
OSC1
SENSE
FLOCK
TLOCK
COM0 · · · COM3
SEG0 · · · · SEG17
IC401 (1/2)
M37410M6H210
SYSTEM CONTROL &
LCD DISPLAY (RSL5064-L)


IC706
MN6626
DIGITAL SIGNAL PROCESSOR
DSLP
DRF
ARF
DO
+B
DSL
PHASE CMPARATOR
FREQUENCY COMPARATOR
VDD
VSS
SYNDROME COMPUTATION
CIRC DECODER
VCO
SYNC DETECTION
SYNC INTERPOLATION PROTECTION
EFM DATA DEMODULATION
16K SRAM
INTERPOLATION /SOFT/MUTING /DIGITAL ATTENUATION
CRCC CHECK
SUBCODE DEMODULATION
RAM ADDRESS GENERATOR
PEAK DETECTION/ AUTO-CUE
DIGITAL AUDIO INTERFACE
BLOCK
SQCK
SUBQ
TRON
CLVS
Q-CODE REGISTER
TIMING GENERATOR
OSC
CLV SERVO
MIRCO COMPUTER INTERFACE
SRDATA
SCK
LRCK
MEMP
DEMPH
XI
768FS
RST
WVIL
X701
(33.8688MHz)
IC705
MN6475
DIGITAL FILTER & D/A CONVERTER
X1
X2
TIMING GENERATOR
S/P CONVERTER
DIGITAL DE-EMPHASIS
FIR1
FIR2
MASH LOGIC
PWM LOGIC
OUTPUT (Rch)
OUTPUT (Lch)
A
IC402
S8054HN-T
RESET SIGNAL GENERATOR
COMPA-RATOR
REFERENCE VOLTAGE
LEVEL CONVERTER
OUTPUT CIRCUIT
+B (2)
ECM
ECS
XCK
MLD
MCLK
MDATA
MUTE
STAT
ARF
TRCRS
VDET
DO
CLVS
OFT
RFDET
TRON
TIMING GENERATOR
XI
INPUT PORT
WVEL
MICRO COMPUTER INTERFACE
MDATA
MCLK
MLD
SENSE
IC702
TCA0372DM2R
SPINDLE DRIVE
MOTOR CONTROL
MOTOR CONTROL
VCC
GND
SPINDLE MOTOR
X402
X401
D.MUTE
STAT
CO.RST
VDD
VSS
OSC2
OSC1
XO
X1
RST
BLKCK
SQCK
SUBQ
MDATA
MCLK
MLD
IC401 (1/2)
M37410M6H210
SYSTEM CONTROL & LCD DRIVE
BATT
SENSE
FLOCK
TLOCK
COM0 . . . COM3
SEG0 . . . SEG17
58 61 62 79
REST
IN1 (CD)
VREF
S701 (REST)
KEY MATRIX
S401 ~ S407
LCD DISPLAY (RSL5064-L)

■ CHECKING THE OPERATION PROBLEMS ON THE TRAVERSE DECK (OPTICAL PICKUP)

Make sure to follow the procedures below to check the operation problems of the traverse deck (optical pickup) before replacing it. Replace the traverse deck only after the problem is identified.


(Procedure No.)
(Checking Points)
(Cause)
(Testing Procedure)
Starting the reading operation (TOC).
1.
Does the laser light up?
NO
Faulty laser (Worn out)
Check if the output is minimum 0.5 Vp-p at the test point.
YES
2.
Is focus search executed? (Check if lens moves up and down.)
NO
Broken or shorted focus coil
Check if conductance on both ends of coil with the tester at about 30 ohms. (The lens will slightly move up and down during the checking.)
YES
The turntable rotates.
3.
Tracking ON.
NO
Broken or shorted tracking coil
Check if conductance on both ends of coil with the tester at about 30 ohms. (The lens will slightly move to the right or left during the checking.)
YES
4.
RF signal output
NO
Faulty PD (PHOTO DETECTOR)
Check if the output is minimum 0.5 Vp-p at the test point.
Traverse deck (optical pickup) is normal.
Traverse deck (optical pickup) is faulty.

※Replace traverse deck.

- Check electrical circuit.
- CD is not adjusted properly. Adjust CD again.
  - (1) Mechanical adjustment. } Refer to pp. 37 ~ 39
  - (2) Focus balance adjustment (PD balance) } Refer to pp. 37 ~ 39
- Check for flaws on disc or if it is warped or not centered.

※Checking Operations of Replaced Traverse Deck (New Traverse Deck)

a) Check the operations described below on the traverse deck after replacing it.

∗Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

∗Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

∗Checking Using Defect Disc.

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the defect test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

b) If the operations are normal, CD adjustment are not required when the traverse deck is replaced.

Note: CD adjustments are required in the cases below. (Mechanical adjustments are not necessary.)

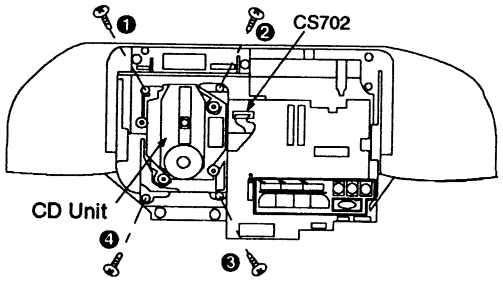
- If audio is not played back continuously or noises occur after step (a) is excuted.
- If the adjustment VR (VR701) were rotated before the traverse deck was replaced.

Caution:

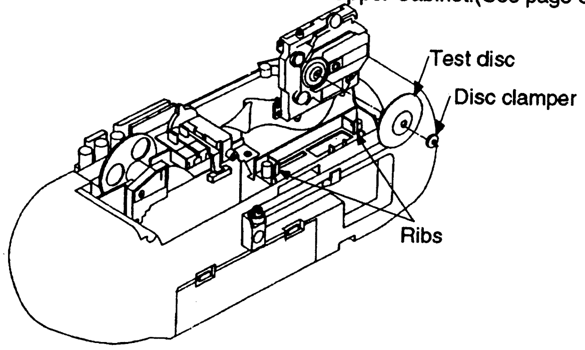
- **It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens. Avoid exposure to the laser beam, especially when performing adjustments.**

● How to check the CD P.C.B.

1. Remove the upper cabinet by following the disassembly instructions in Ref. No. 2 in the Removal of the Upper Cabinet.(See page 6)



2. Remove 4 screws (❶~❹).
3. Remove the CD unit.



4. Slot the CD unit onto the two Ribs so that the CD unit stands vertically with the CD P.C.B facing inwards.
5. Remove the Disc clamper by following the disassembly instructions in Ref. No. 19 in the Removal of the Disc Clamper. (See page 9)
6. Fix the test disc with the Disc clamper.

■ MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT POINT

- Please refer to Circuit Board Diagram for test point location

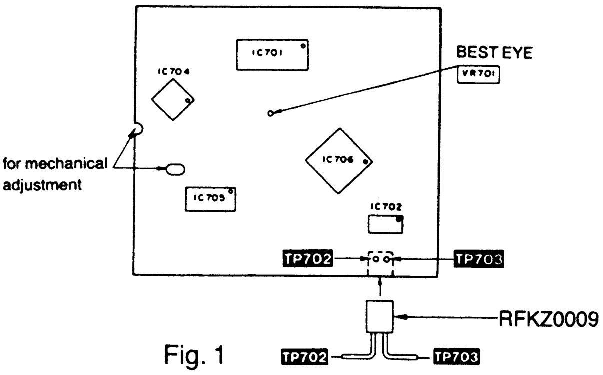


Fig. 1

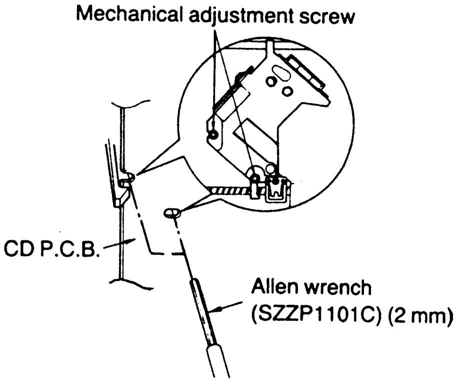


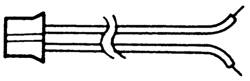
Fig. 2

<CD SECTION>

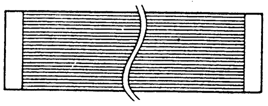
■ The optional extension cable kit composed of a 23-pin flat cable and a 2-pin connector should be used to perform measurement and adjustment of the unit's CD P.C.B.

Part number of the Extention Cable Kit: RFKZ0009

2-pin connector .... ×1

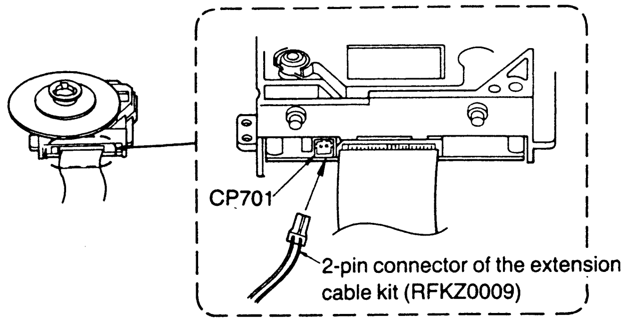


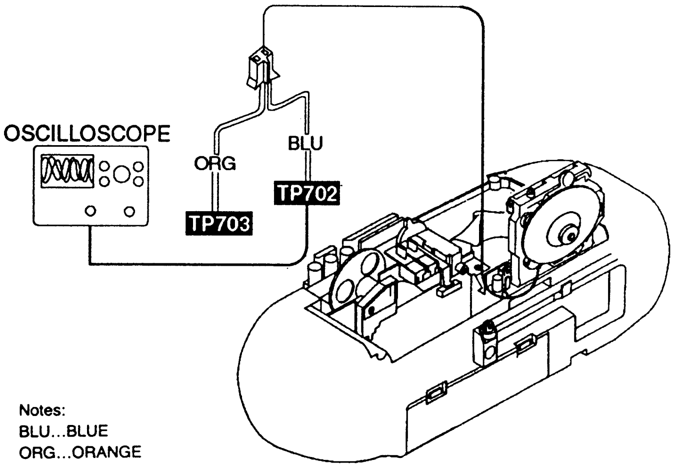
23-pin flat cable .... ×1 } Not use



•HOW TO ADJUST THE CD P.C.B.

1. Attach the CD unit and load the test disc by following the steps in the section "How to check the CD P.C.B."

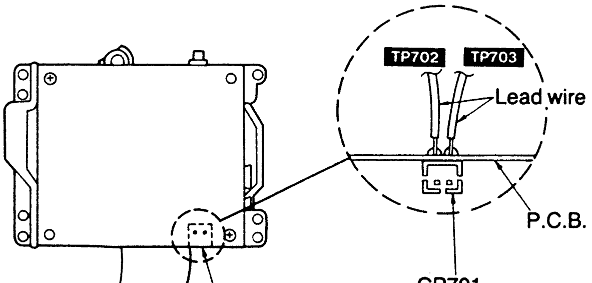

CP701
2-pin connector of the extension cable kit (RFKZ0009)

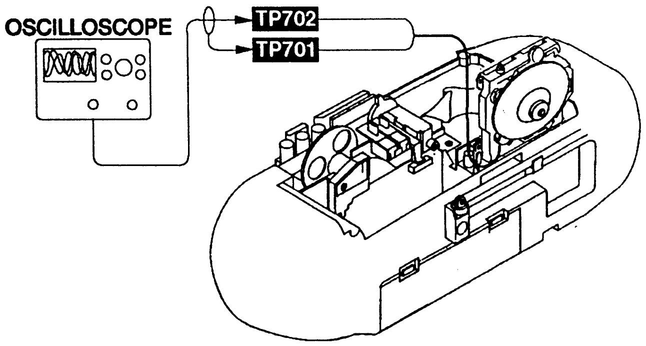

OSCILLOSCOPE
ORG
BLU
TP702
TP703
Notes:
BLU...BLUE
ORG...ORANGE

2. Connect the 2-pin connector of the extension cable kit (RFKZ0009) to CP701 as shown in the figure.

3. Connect the 2-pin connector's orange and blue wires respectively to an oscilloscope as shown in the figure.

•HOW TO ADJUST THE CD P.C.B. IF THE EXTENSION CABLE KIT IS NOT AVAILABLE


TP702
TP703
Lead wire
P.C.B.
CP701
CP701


OSCILLOSCOPE
TP702
TP701

1. Solder the lead wire to the connector (CP701) as shown in the figure.

2. Attach the CD unit and load the test disc by following the steps in the section "How to check the CD P.C.B.".

•ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
•Set power source voltage to 15 V DC. •Set power switch to ON. •Set function switch to CD.	•Set graphic equalizer control to center. •Set S-XBS control to minimum. •Output of signal generator should be no higher than necessary to obtain an output reading.

Caution:

- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens. Avoid exposure to the laser beam, especially when performing adjustments.

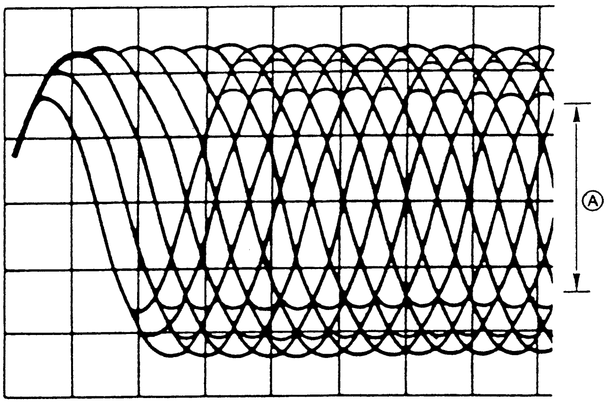
Measuring Instruments and Special Tools

- Test disc
  1. Playability test disc (SZZP1054C)
  2. Uneven test disc (SZZP1056C)
- Allen wrench (M2.0) (SZZP1101C)
- Oscilloscope
- Lock paint (RZZOL01)

(1) MECHANICAL ADJUSTMENT

- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability when the traverse deck has not been replaced. Make the electrical adjustments first.

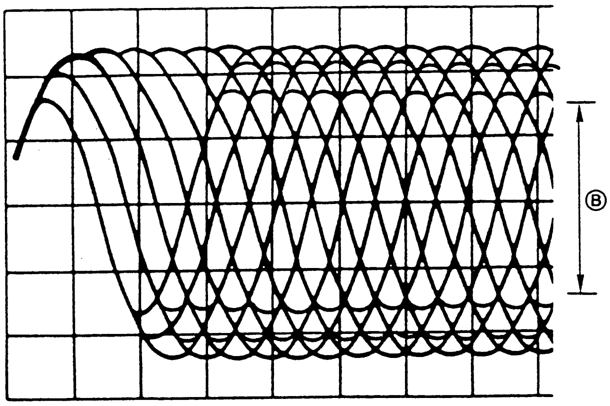
1. Connect the oscilloscope's CH. 1 probe across **TP702** (+) and **TP703** (V-REF) on the Servo P.C.B.
   Oscilloscope setting:
   VOLT .... 200 mV
   SWEEP .... 0.5 µsec
   Input coupling .... AC
2. Switch the player power **ON**, and play track **19** on the test disc (SZZP1056C).
3. Leave the player in Play mode and place it as shown in the figure on the right.
4. Alternately adjust the two mechanical adjusting screws with the 2.0 mm allen wrench (SZZP1101C) until the RF signal amplitude variation on the oscilloscope is minimized. (Shown in Fig. 2, page■)
5. After completing the adjustment, lock the **mechanical adjustments** with lock paint (RZZOL01).



Ⓐ Minimize the variation of amplitude.

(2) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TP702** (+)and **TP703** (V-REF) on the Servo P.C.B.
   Oscilloscope setting:
   VOLT............................. 200 mV
   SWEEP........................... 0.5 µsec
   Input coupling .... AC
2. Switch the player power **ON**, and play the 1 kHz (track 1) on test disc (SZZP1054C).
3. Adjust **VR701** until the RF signal eye pattern amplitude is maximized.



Ⓑ Maximize the amplitude

(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

·Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

·Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

·Checking Playability

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc and verify that no sound skip or noise occurs.

MEASUREMENTS AND ADJUSTMENTS

ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set band selector switch to MW, LW OR FM.
3. Set function selector to TUNER/B.P or TAPE.
4. Set power source voltage to 15V DC.
5. Set tone control to center.
6. Set XBS level control to minimum.
7. Output of signal generator should be no higher than necessary to obtain an output reading.

AM-IF ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Shown in Fig. 1)	REMARKS
CONNECTIONS	FREQUENCY				
Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	459 kHz 30% Mod. at 400Hz	Point of non-interference. (on/about 600Hz)	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 2 and then connect the lead wires of the plug to the measuring instrument.)	T2 (AM IFT)	Adjust for maximum output.

LW-RF ALIGNMENT

Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	136kHz...(E,EB, GN) 137±5kHz...(EG)	Tuning capacitor fully closed.	•	L8 (LW OSC Coil)	Adjust for maximum output.
•	297KHz...(E,EB,GN) 297±5kHz...(EG)	Tuning capacitor fully closed.	•	CT3(LW OSC Trimmer)	Adjust for maximum output.
•	145 kHz	Tune to signal	•	(*1) L5-2(LW ANT Coil)	Adjust for maximum output. Adjust L5-2 by moving coil along the ferrite core.
•	285 kHz	•	•	CT2 (LW ANT Trimmer)	Adjust for maximum output.
(*1) Fix antenna coil with wax after completing alignment.					

MW-RF ALIGNMENT

Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	511kHz..(E,EB,GN) 514±3kHz(EG)	Tuning capacitor fully closed.	•	L9 (MW OSC Coil)	Adjust for maximum output.
•	1650kHz(E,EB,GN) 1639±5kHz..(EG)	Tune to signal	•	CT1-3(MW OSC Trimmer))	Adjust for maximum output.
•	550kHz	•	•	(*2) L5-1(MW ANT Coil)	Adjust for maximum output. Adjust L5-1 by moving coil along the ferrite core.
•	1500kHz	•	•	CT1-4 (MW ANT Trimmer)	Adjust for maximum output.
(*2) Fix antenna coil with wax after completing alignment.					

FM-IF ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Shown in Fig. 1)	REMARKS
CONNECTIONS	FREQUENCY				
Connect to test point TP3 through ceramic capacitor(0.001μF) Negative side to test point TP2.	10.7 MHz (SWEEP)	Point of interference. (on/about 90 MHz)	Connect vert. amp. scope to test point TP4. Negative side to test point TP5.	T1 (FM 1st)	Wave form is shown in Fig. 3.
•	•	•	•	T3 (FM 2nd)	Wave form is shown in Fig. 4.

■ FM-RF ALIGNMENT

Connect to test point **TP1** through FM dummy antenna. Negative side to test point **TP2**.	86.2 MHz... (E,EB,GN) 87.35 MHz ± 50kHz...(EG)	Variable capacitor fully closed.	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 2 and then connect the lead wires of the plug to the measuring instrument.)	L4 (FM OSC Coil)	(*3)Adjust for maximum output.
•	109.2MHz... (E,EB,GN) 108.25MHz ± 50kHz...(EG)	Variable capacitor fully open.	•	CT1-1 (FM OSC Trimmer) .	•
•	106 MHz	Tune to signal	•	CT1-2 (FM ANT Trimmer)	•
(*3) Three output responses will be present; Proper tuning is the center frequency.					

■ SEPARATION ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT (Shown in Fig. 1)	SPECIFICATION	REMARKS
98 MHz, 60 dB(CW) Connect to test point **TP1** through FM dummy antenna. Negative side to **TP2**	**TP7** . . .(+) **TP8** . . .(–)	VR1	19KHz	Adjust VR1, for 19kHz±50Hz reading on frequency counter.

■ HEAD AZIMUTH ALIGNMENT

TEST TAPE	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
QZZCFM (8kHz, −20dB)	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 2 and then connect the lead wires of the plug to the measuring instrument.)	Azimuth screw (Shown in Fig. 5)	Maximum output	Playback mode.

■ TAPE SPEED ALIGNMENT

TEST TAPE	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
QZZCFM (3 kHz)	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 2 and then connect the lead wires of the plug to the measuring instrument.)	Motor VR (Shown in Fig. 6)	3000 ±50Hz	1. Playback mode. 2. Adjust motor VR, for 3000 ±50Hz reading on frequency counter.

■ RECORD BIAS VOLTAGE & FREQUENCY CHECK

TEST TAPE	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Use Normal tape	**TP301** ...(+) **TP302** ...(-)	———	16.0 ± 2mV	•Record mode
Use Normal tape	**TP301** ...(+) **TP302** ...(-)	———	100 ± 10KHz	•Record mode

BEATPROOF CHECK

TEST TAPE	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Use Normal tape	TP301 ...(+) TP302 ...(−) (Refer to Fig. 7)	———	1.8 ~3.8KHz	1. Set the function selector to tuner position and the tape operation to record mode. 2. Press the tuner buttons 1, 2 &3 times. 3. Confirm the osc-wave to be sine wave without distortion and abnormal oscillation.

ALIGNMENT POINT

- Please refer to Circuit Board and Wiring Connection Diagram for test point locations

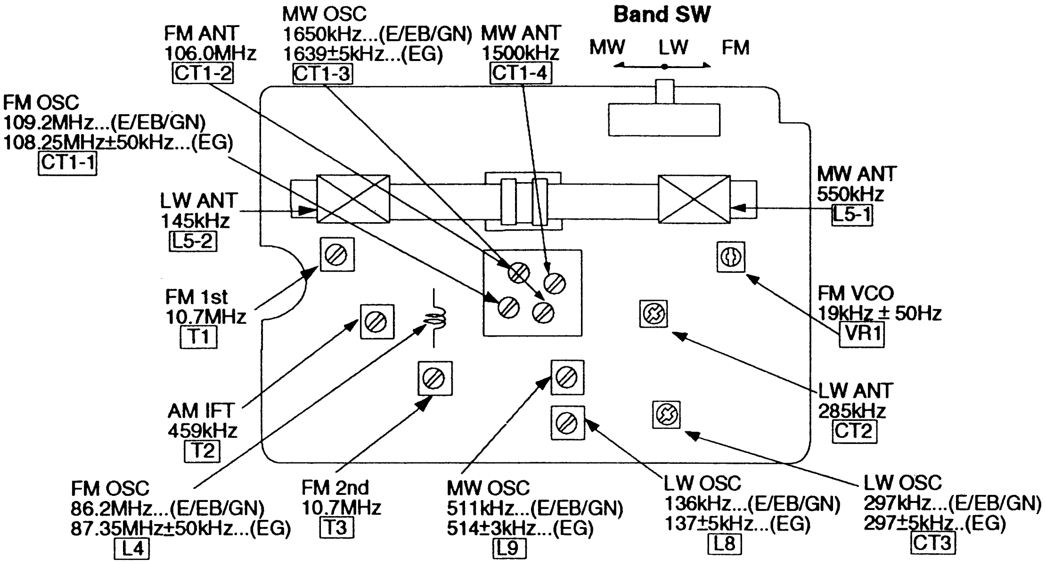

FM ANT
106.0MHz
CT1-2
MW OSC
1650kHz...(E/EB/GN)
1639±5kHz...(EG)
CT1-3
MW ANT
1500kHz
CT1-4
Band SW
MW LW FM
FM OSC
109.2MHz...(E/EB/GN)
108.25MHz±50kHz...(EG)
CT1-1
LW ANT
145kHz
L5-2
MW ANT
550kHz
L5-1
FM 1st
10.7MHz
T1
FM VCO
19kHz ± 50Hz
VR1
LW ANT
285kHz
CT2
AM IFT
459kHz
T2
FM OSC
86.2MHz...(E/EB/GN)
87.35MHz±50kHz...(EG)
L4
FM 2nd
10.7MHz
T3
MW OSC
511kHz...(E/EB/GN)
514±3kHz...(EG)
L9
LW OSC
136kHz...(E/EB/GN)
137±5kHz...(EG)
L8
LW OSC
297kHz...(E/EB/GN)
297±5kHz..(EG)
CT3

Fig. 1

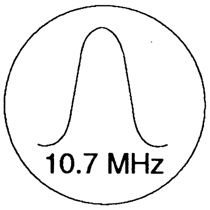


Fig. 3

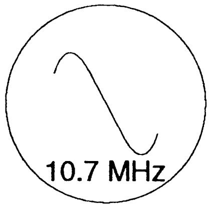


Fig. 4

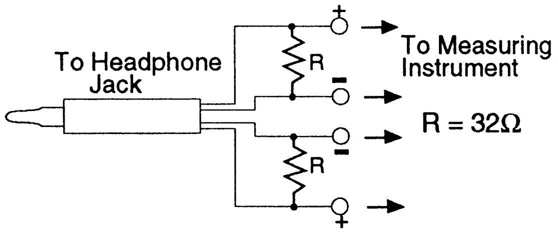

To Headphone Jack
+
R
−
To Measuring Instrument
R = 32Ω
−
R
+

Fig. 2

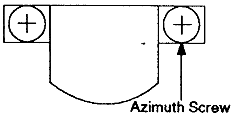

Azimuth Screw

Fig. 5

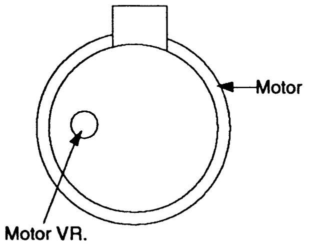

Motor
Motor VR.

Fig. 6

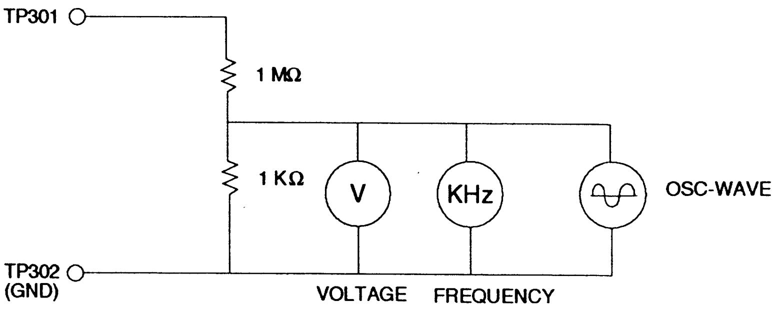
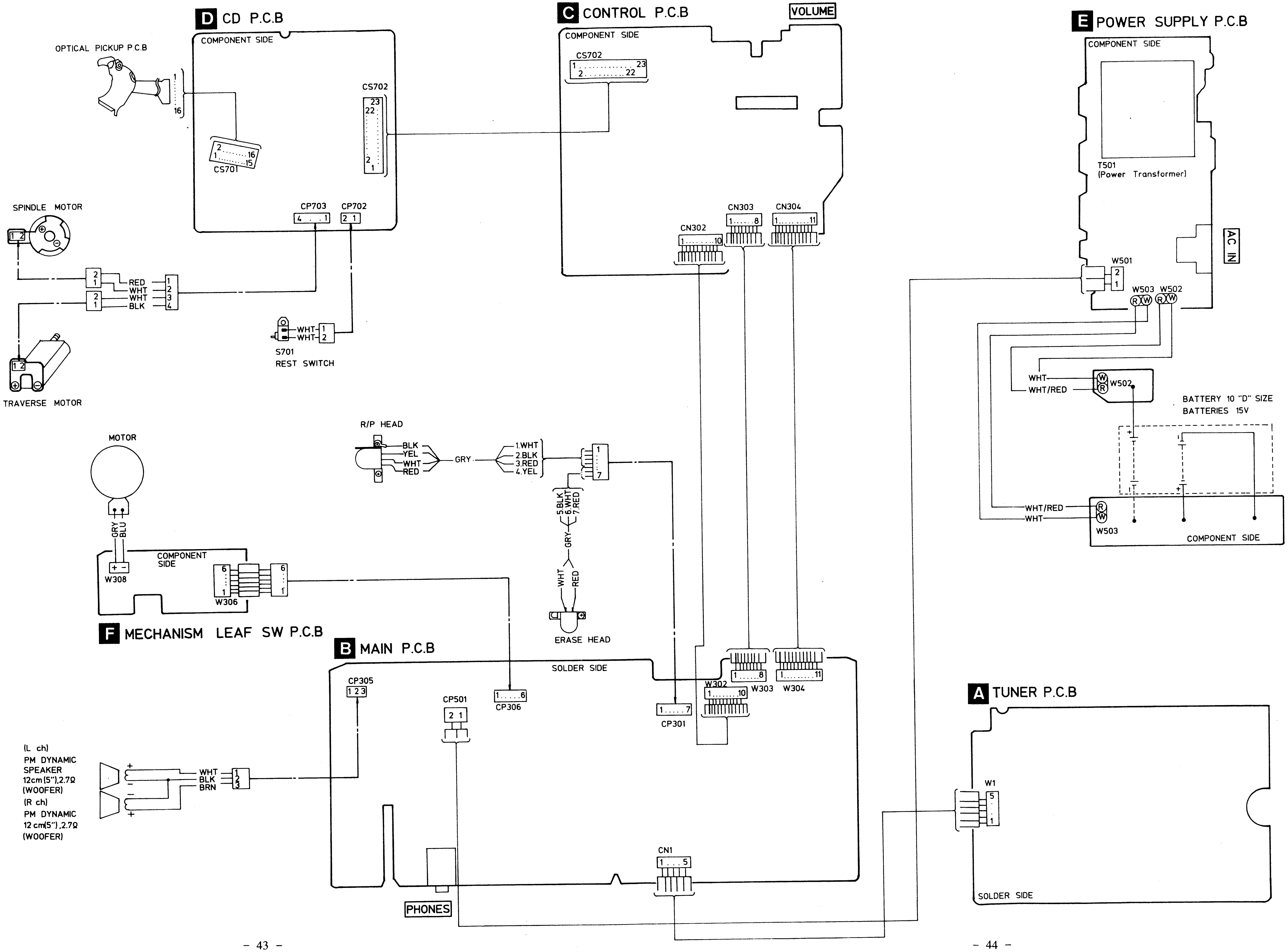
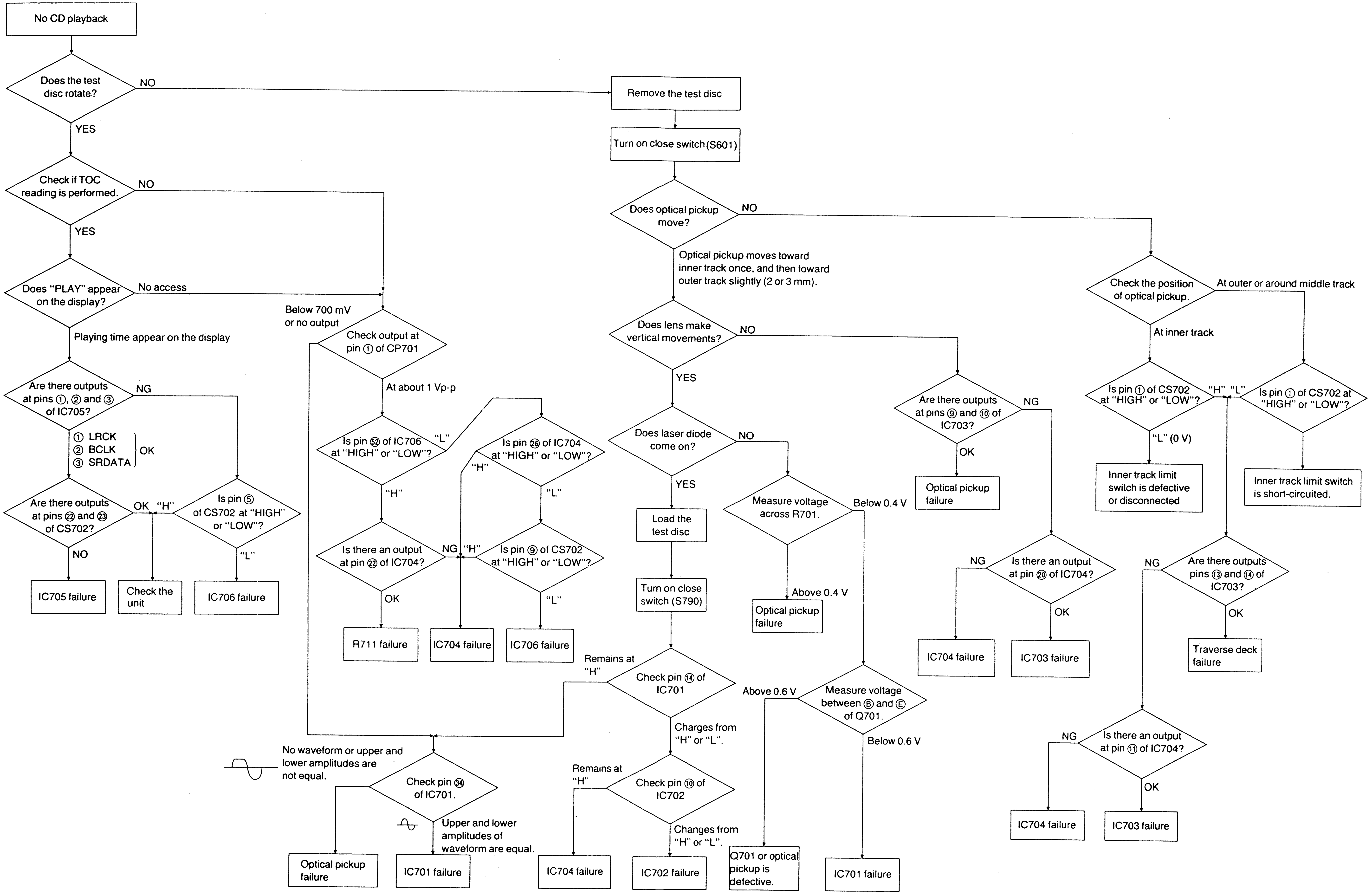

TP301
1 MΩ
1 KΩ
V
KHz
OSC-WAVE
TP302
(GND)
VOLTAGE
FREQUENCY

Fig. 7

■ WIRE CONNECTION DIAGRAM


D CD P.C.B
COMPONENT SIDE
OPTICAL PICKUP P.C.B
1
16
CS701
2 16
1 15
CS702
23
22
2
1
CP703
4 . . 1
CP702
2 1
SPINDLE MOTOR
RED
WHT
WHT
BLK
1 2 3 4
TRAVERSE MOTOR
S701
REST SWITCH
WHT
WHT
C CONTROL P.C.B
VOLUME
COMPONENT SIDE
CS702
1 23
2 22
CN302
1 10
CN303
1 8
CN304
1 11
E POWER SUPPLY P.C.B
COMPONENT SIDE
T501
(Power Transformer)
AC IN
W501
W503 W502
R W R W
WHT
WHT/RED
W502
BATTERY 10 "D" SIZE
BATTERIES 15V
WHT/RED
WHT
W503
COMPONENT SIDE
MOTOR
GRY
BLU
COMPONENT SIDE
W308
W306
6
1
F MECHANISM LEAF SW P.C.B
R/P HEAD
BLK
YEL
WHT
RED
GRY
1.WHT
2.BLK
3.RED
4.YEL
1
7
5.BLK
6.WHT
7.RED
GRY
WHT
RED
ERASE HEAD
B MAIN P.C.B
SOLDER SIDE
CP305
1 2 3
CP306
1 6
CP501
2 1
CP301
1 7
W302
1 10
W303
1 8
W304
1 11
(L ch)
PM DYNAMIC
SPEAKER
12cm(5"),2.7Ω
(WOOFER)
(R ch)
PM DYNAMIC
12 cm(5"),2.7Ω
(WOOFER)
WHT
BLK
BRN
PHONES
CN1
1 . . . 5
A TUNER P.C.B
W1
5
1
SOLDER SIDE

■ TROUBLESHOOTING GUIDE


No CD playback
Does the test disc rotate?
NO
YES
Check if TOC reading is performed.
NO
YES
Does "PLAY" appear on the display?
No access
Playing time appear on the display
Are there outputs at pins ①, ② and ③ of IC705?
NG
① LRCK
② BCLK
③ SRDATA
OK
Are there outputs at pins ㉒ and ㉓ of CS702?
OK
"H"
Is pin ⑤ of CS702 at "HIGH" or "LOW"?
"L"
NO
IC705 failure
Check the unit
IC706 failure
Below 700 mV or no output
Check output at pin ① of CP701
At about 1 Vp-p
Is pin ㊾ of IC706 at "HIGH" or "LOW"?
"L"
"H"
Is pin ㉖ of IC704 at "HIGH" or "LOW"?
"H"
"L"
Is there an output at pin ㉒ of IC704?
NG
"H"
Is pin ⑨ of CS702 at "HIGH" or "LOW"?
OK
"L"
R711 failure
IC704 failure
IC706 failure
No waveform or upper and lower amplitudes are not equal.
Check pin ㉞ of IC701.
Upper and lower amplitudes of waveform are equal.
Optical pickup failure
IC701 failure
Remove the test disc
Turn on close switch (S601)
Does optical pickup move?
NO
Optical pickup moves toward inner track once, and then toward outer track slightly (2 or 3 mm).
Does lens make vertical movements?
NO
YES
Does laser diode come on?
NO
YES
Load the test disc
Turn on close switch (S790)
Measure voltage across R701.
Below 0.4 V
Above 0.4 V
Optical pickup failure
Remains at "H"
Check pin ⑭ of IC701
Charges from "H" or "L".
Remains at "H"
Check pin ⑩ of IC702
Changes from "H" or "L".
IC704 failure
IC702 failure
Above 0.6 V
Measure voltage between Ⓑ and Ⓔ of Q701.
Below 0.6 V
Q701 or optical pickup is defective.
IC701 failure
Are there outputs at pins ⑨ and ⑩ of IC703?
NG
OK
Optical pickup failure
Is there an output at pin ⑳ of IC704?
NG
OK
IC704 failure
IC703 failure
Check the position of optical pickup.
At outer or around middle track
At inner track
Is pin ① of CS702 at "HIGH" or "LOW"?
"H"
"L"
Is pin ① of CS702 at "HIGH" or "LOW"?
"L" (0 V)
Inner track limit switch is defective or disconnected
Inner track limit switch is short-circuited.
Are there outputs pins ⑬ and ⑭ of IC703?
NG
OK
Traverse deck failure
Is there an output at pin ⑪ of IC704?
NG
OK
IC704 failure
IC703 failure

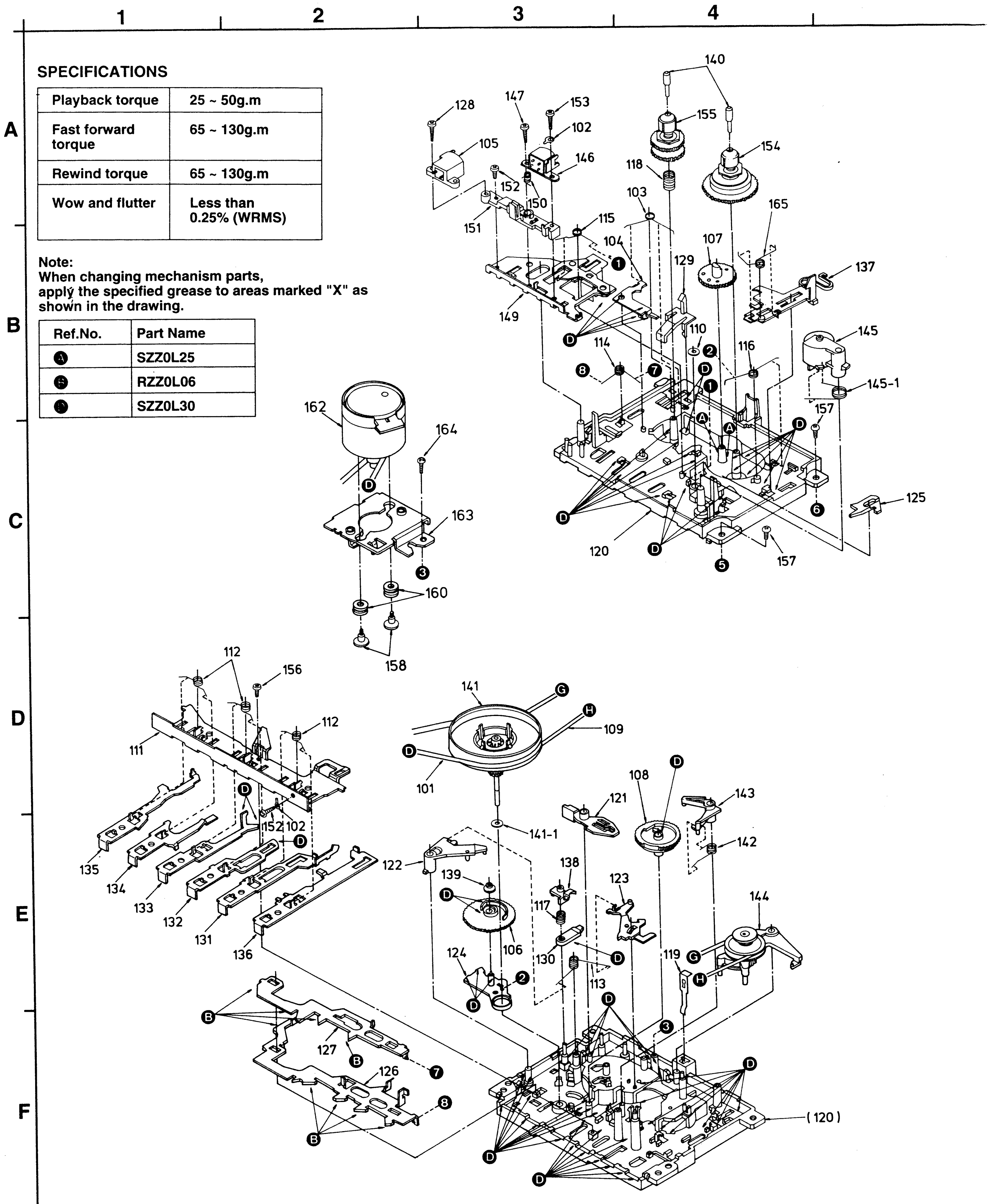
■ MECHANISM PARTS LOCATION

SPECIFICATIONS

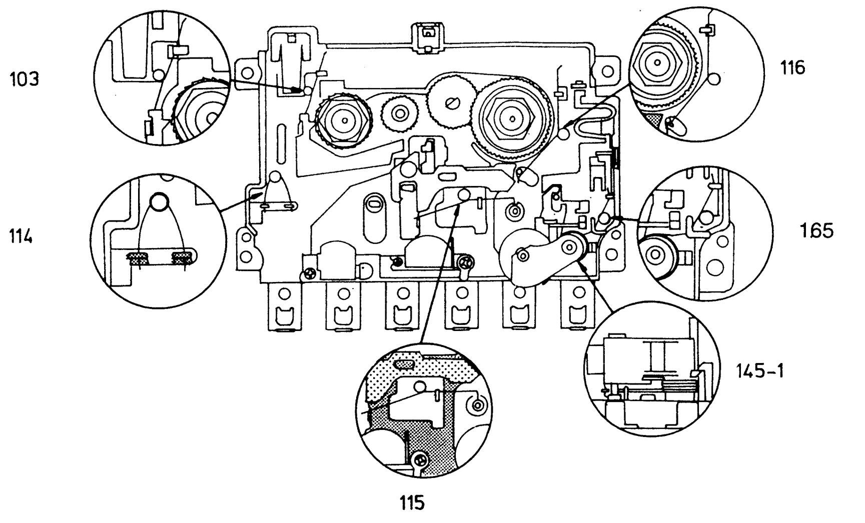
Playback torque	25 ~ 50g.m
Fast forward torque	65 ~ 130g.m
Rewind torque	65 ~ 130g.m
Wow and flutter	Less than 0.25% (WRMS)

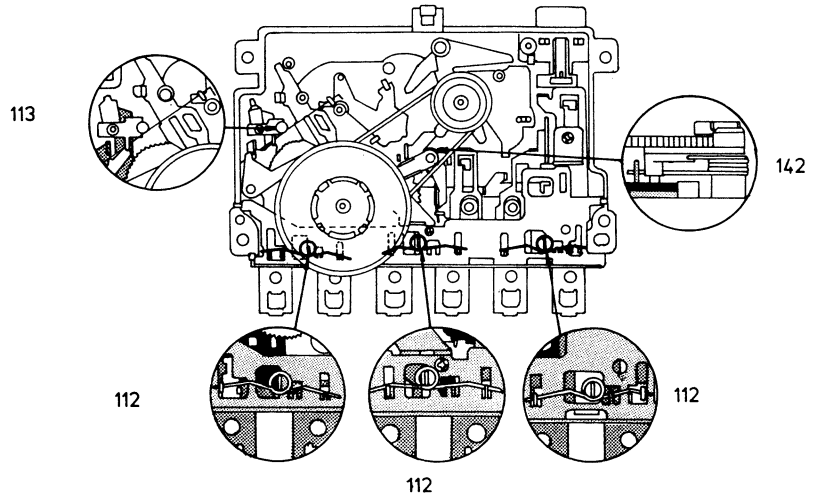
Note:
When changing mechanism parts, apply the specified grease to areas marked "X" as shown in the drawing.

Ref.No.	Part Name
Ⓐ	SZZ0L25
Ⓑ	RZZ0L06
Ⓓ	SZZ0L30


1
2
3
4
A
B
C
D
E
F
140
128
147
153
102
155
154
105
146
118
152
150
103
165
151
115
104
107
129
137
149
110
116
114
145
145-1
157
162
164
163
125
120
160
158
112
156
111
141
109
101
108
121
143
141-1
142
122
139
138
123
144
135
134
133
132
131
136
106
117
124
130
113
119
127
126
(120)

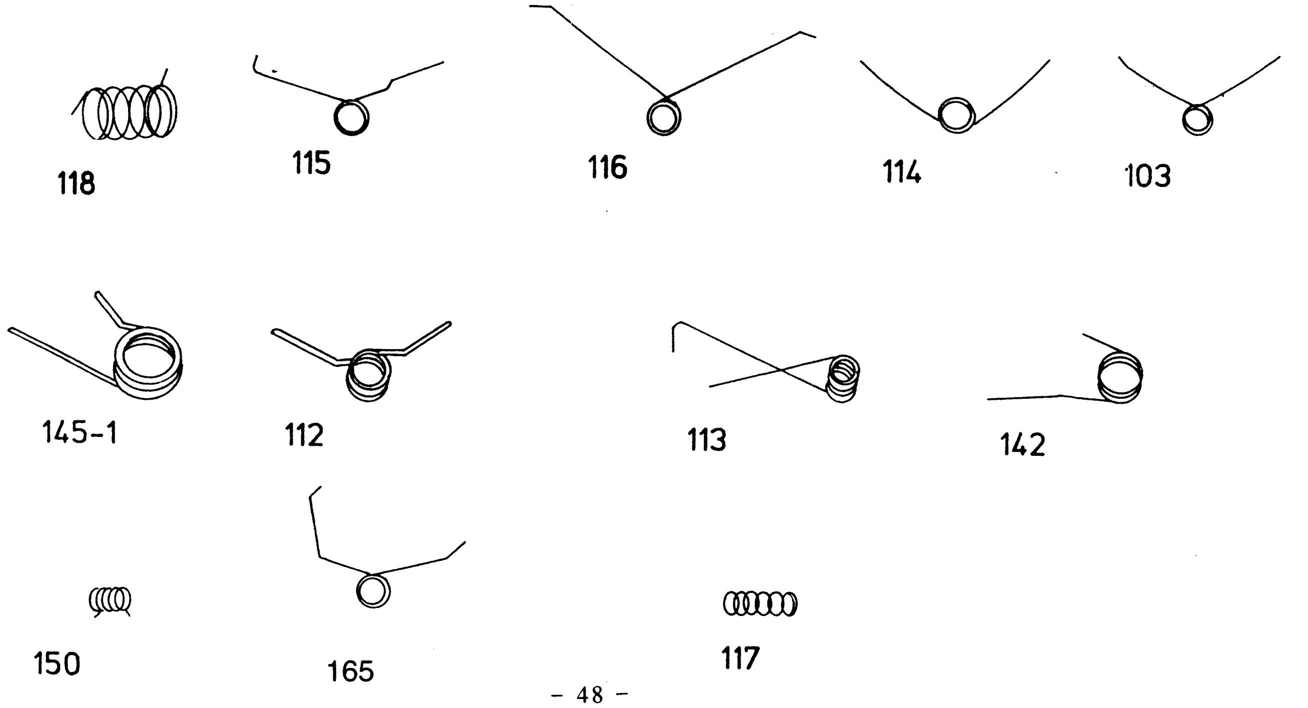
■ SPRING LOCATION


103
116
114
165
145-1
115

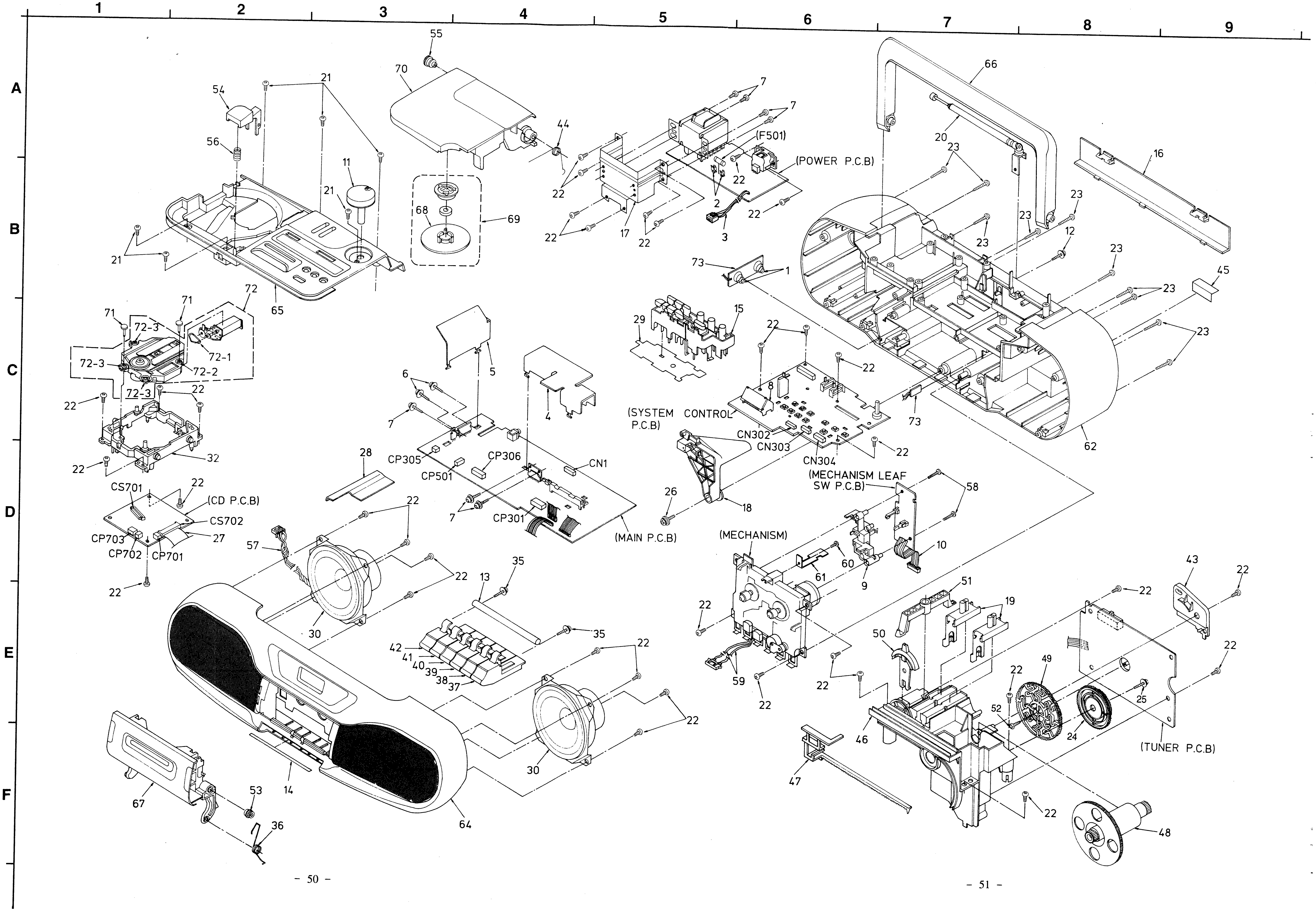

113
142
112
112
112

■ SPRING ILLUSTRATION

- The illustration shows the actual size of the springs so it can be used to check their shapes. (The illustration shows the springs separated from the mechanism).


118
115
116
114
103
145-1
112
113
142
150
165
117

■ CABINET PARTS LOCATION


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
55
70
66
21
54
7
7
44
(F501)
56
20
23
16
11
(POWER P.C.B)
22
2
21
68
69
17
3
12
73
1
45
72
71
65
72-3
72-1
72-2
29
15
5
6
8
4
(SYSTEM CONTROL P.C.B)
CN302
CN303
62
32
28
CP305
CP306
CN1
CP501
CN304
(MECHANISM LEAF SW P.C.B)
58
26
18
CS701
(CD P.C.B)
CS702
27
CP703
CP702
CP701
CP301
(MAIN P.C.B)
(MECHANISM)
10
57
60
61
9
35
13
43
51
19
30
50
42
41
40
39
38
37
59
49
25
52
46
24
(TUNER P.C.B)
47
14
53
67
36
64
48

REPLACEMENT PARTS LIST

Notes:
- * Important safety notice:
  Components identified by ⚠mark have special characteristics important for safety.
  Furthermore,special parts which have purposes of fire-retardant (resistors) ,high-quality sound (capacitors) ,low-noise (resistors) ,etc. are used,
  When replacing any of these components ,be sure to use only manufacturer's specified parts shown in the parts list.
- * The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area)
  Parts without these indications can be used for all areas.
- * [M] Indicates in the Remarks columns indicates parts supplied by **MESA.**

Ref No.	Part No.	Part Name & Description	Remarks
		CABINET & CHASSIS	
1	RJC511ZBS	UM-1 BATT SPRING	[M]
2	RJF28ZA	FUSE HOLDER	
3	REX0446-1	WIRE ASS'Y	[M]
4	RMY0093	HEAT SINK(A)	[M]
5	RMY0098	HEAT SINK(B)	[M]
6	XTW3+10F	SCREWS	
7	XTV3+8F	SCREWS	
8	RMN0167	LCD HOLDER	[M]
9	RMR0368	CHASSIS	[M]
10	REX0429	WIRE ASS'Y	[M]
11	RGW0142-H	VOL. KNOB	[M]
12	XYN3+F8FY	SCREW	
13	SUX102	MECHA BUTTON SHAFT	[M]
14	RMQ0305	BUTTON SHEET	
15	RGZ0011-K	CD OPR BUTTON	[M]
16	RKK347ZB-7	BATT COVER	[M]
17	RMA0552-1	P.T ANGLE PLATE	[M]
18	RML0242	REC LEVER	[M]
19	RGV0094-K	SLIDE KNOB	[M]
20	XEARR175FD-Y	ROD ANTENNA	[M]
21	XTN3+10CFZ	SCREWS	
22	XTV3+12G	SCREWS	
23	XTV3+20G	SCREWS	
24	RDG0187	GEAR	[M]
25	XTWS3+10Q	GEAR SCREW	
26	XTW3+12Q	SCREWS	
27	REE0388	FFC WIRE	[M]
28	RMQ0284	PVC SAFETY COVER	[M]
29	RMQ0304	BUTTON SHEET	[M]
30	EAS10P542K-G	SPEAKER	[M]
32	RMK0105	CHASSIS	
35	XTWS3+8T	SCREWS	
36	RME0104	CASSETTE OPEN SPRING	[M]
37	RGU0731-H	PAUSE BUTTON	[M]
38	RGU0732-H	STOP/EJECT BUTTON	[M]
39	RGU0733-H	FF/CUE BUTTON	[M]
40	RGU0734-H	REW/REV BUTTON	[M]
41	RGU0735-H	PLAY BUTTON	[M]
42	RGU0736-H	RECORD BUTTON	[M]
43	RMK0162	SUB CHASSIS	[M]
44	RME0103	CD OPEN SPRING	[M]
45	RMQ0301	COVER SHEET	[M]
46	RMK0153	DIAL CHASSIS	[M]
47	RGJ0011-W	POINTER	[M]
48	RGW0143-K	TUNING KNOB	[M]
49	RDG5845ZAB	VARICON GEAR	[M]
50	RGV0093-K	BAND KNOB	[M]
51	RMA0554	BAND LEVER	[M]
52	XYN26+C6	VARICON SCREW	
53	RDG5782YC	CD DAMPER GEAR	[M]
54	RGU0716-H	CD EJECT BUTTON	[M]
55	RDG5782YC	CASSETTE DAMPER GEAR	[M]
56	RMB0244	EJECT SPRING	[M]
57	REX0430	SP WIRE	[M]
58	XTN2+16GFZ	SCREWS	
59	REX0439-1	WIRE ASS'Y	[M]
60	XTN2+3F	SCREW	
61	RMC0148	REC SPRING	[M]
62	RFKHXDS101EK	BACK CABINET ASS'Y	[M](E)
62	RFKHXDS101EB	BACK CABINET ASS'Y	[M](EB,GN)
62	RFKHXDS101EG	BACK CABINET ASS'Y	[M](EG)
64	RFKGXDS101P	FRONT CABINET ASS'Y	[M]
65	RFKKXDS101EK	TOP CABINET ASS'Y	[M](E,EB)
65	RFKKXDS101EG	TOP CABINET ASS'Y	[M](EG)
65	RFKKXDS101GN	TOP CABINET ASS'Y	[M] (GN)
66	RFKNXDS101PK	HANDLE ASS'Y	[M]
67	RFKLXDS101PK	CASS.HOLDER ASS'Y	[M]
68	RFKNXDT680PA	DISC PAD ASS'Y	[M]
69	RFKNXDT680PB	DISC HOLDER ASS'Y	[M]
70	RFKKXDS101PB	CD COVER ASS'Y	[M]
71	RMS0123-1	PIN	
72	SODD110Z	TRAVERSE DECK ASS'Y	
72-1	RDV0014	BELT	
72-2	SHGD112	RUBBER	
72-3	SHGD113-1	RUBBER	
73	RJB0566N	P.C.B	[M]
		INTEGRATED CIRCUIT(S)	
IC 1	AN7205	I.C, RF	
IC 2	RVIBA4236L	I.C, IF	
IC 3	RVIBA1332L	I.C, MPX	

■ REPLACEMENT PARTS LIST

Ref No.	Part No.	Part Name & Description	Remarks
		MECHANISM	
101	RDV0007	MAIN BELT	[M]
102	RJR0033	TERMINAL	[M]
103	RMB0109-1	SPRING	[M]
104	RML0116	ARM	
105	RBR2CG002-S	E HEAD	[M]
106	RDG0057	GEAR	[M]
107	RDG0059	GEAR	[M]
108	RDK0005	GEAR	[M]
109	RDV0006-1	BELT	[M]
110	RHW16009	WASHER	[M]
111	RMA0109	ANGLE	[M]
112	RMB0043-1	SPRING	[M]
113	RMB0045	SPRING	[M]
114	RMB0046-1	SPRING	[M]
115	RMB0047	SPRING	[M]
116	RMB0048	SPRING	[M]
117	RMB0053	SPRING	[M]
118	RMB0125	SPRING	[M]
119	RMC0061	SPRING	[M]
120	RFKRCT090P-K	CHASSIS ASS'Y	[M]
121	RML0071	LEVER	[M]
122	RML0072	LEVER	[M]
123	RML0073-1	LEVER	[M]
124	RML0074	LEVER	[M]
125	RML0076	LEVER	[M]
126	RML0077	LEVER	[M]
127	RML0078	LEVER	[M]
128	XTB2+7F	SCREW	[M]
129	RML0081-1	LEVER	[M]
130	RML0082	LEVER	[M]
131	RMM0023	PLAY ROD	[M]
132	RMM0024	REW ROD	[M]
133	RMM0025	FF ROD	[M]
134	RMM0026	STOP ROD	[M]
135	RMM0027	PAUSE ROD	[M]
136	RMM0028	REC ROD	[M]
137	RMM0029	EJECT ROD	[M]
138	RMR0211	STOPPER	[M]
139	RMR0227	STOPPER	[M]
140	RMS0055	PIN	[M]
141	RXF0012	FLYWHEEL ASS'Y	[M]
141-1	RHW21008	WASHER	[M]
142	RMB0044	SPRING	[M]
143	RML0075	LEVER	[M]
144	RXP0014	PULLEY ASS'Y	[M]
145	RXP0015	ROLLER ASS'Y	[M]
145-1	RMB0049	SPRING	[M]
146	RJH4C29MZAS	R/P HEAD	[M]
147	RHD20003	SCREW	[M]
149	RMA0107	HEAD BASE	[M]
150	RMB0059	SPRING	[M]
151	RMR0159	GUIDE	[M]
152	XTN2+4F	SCREW	
153	XTN2+8F	SCREW	
154	RXR0004	TAKE-UP REEL ASS'Y	[M]
155	RXR0005	SUPPLY REEL ASS'Y	[M]
156	XTN2+6J	SCREW	
157	XTW26+8L	SCREW	
158	RHD26002	SCREW	
160	RMG0102	RUBBER SPACER	[M]
162	RFKPXDS101PK	DC MOTOR ASS'Y	[M]
163	RMA0108	MOTOR ANGLE	[M]
164	XTN26+8J	SCREW	
165	RME0098-2	SPRING	[M]

Ref No.	Part No.	Part Name & Description	Remarks
L 5	RL04N233-0	COIL, ANT	(EG)
L 8	RL01B13-M	COIL, OSC	
L 9	RL02B108-M	COIL, OSC	
L101	RLQZP101KT-Y	COIL, RF CHOKE	
L201	RLQZP101KT-Y	COIL, RF CHOKE	
L301	RL08R001-T	COIL, BIAS OSC	[M]
L302	RLQZB470KT-D	COIL, R CHOKE	
L303	RLQZP101KT-Y	COIL, A CHOKE	
L304	RLQZP101KT-Y	COIL, RF CHOKE	
L401	RLQZP101KT-Y	COIL, RF CHOKE	
L402	RLQZP101KT-Y	COIL, RF CHOKE	(EG)
L501	RLQZB220KT-D	COIL, RF CHOKE	(E,EB, GN) ⚠
L501	RLL500050T-Y	COIL, RF CHOKE	(EG) ⚠
L502	RLQZB220KT-D	COIL, RF CHOKE	(E,EB,GN) ⚠
L502	RLL500050T-Y	COIL, RF CHOKE	(EG) ⚠
		TRANSFORMER(S)	
T 1	RLI4B153-M	FM IFT	
T 2	RLI2B153-M	AM IFT	
T 3	RLI4B153-M	FM IFT	
T501	RTP1L1B004-S	POWER TRANSFORMER	[M] ⚠
		FILTER(S)	
CF1	RVF107WDZT	CERAMIC FILTER	
CF2	RVFSFZ459JL	CERAMIC FILTER	[M]
		OSCILLATOR(S)	
X401	RSXB32K7S01	CRYSTAL RESONATOR	
X402	RSXY4M19M03T	CERAMIC RESONATOR	[M]
X701	RSXZ33M8M01T	OSCILLATOR	
		FUSE(S)	
F501	XBA2C31TB0	FUSE	⚠
		SWITCH(ES)	
S 1	RSS3H001-H	SW, BAND	[M]
S301	RSH2G03VA-A	SW, REC	[M]
S302	RSS2A56ZA-H	SW, MONO/ST.	[M]
S303	RSH1A013-J	SW, TAPE MOTOR	[M]
S304	RSH1A004-1	SW, PLAYBACK	[M]
S401	EVQ21405R	SW, PLAY/PAUSE	
S402	EVQ21405R	SW, STOP/CLEAR	

Ref No.	Part No.	Part Name & Description	Remarks
S403	EVQ21405R	SW, REPEAT	
S404	EVQ21405R	SW, FORWARD	
S405	EVQ21405R	SW, REVERSE	
S406	EVQ21405R	SW, EDIT PAUSE	
S407	EVQ21405R	SW, PROGRAM	
S408	EVQ21405R	SW, TAPE	
S409	EVQ21405R	SW, TUNER/BP	
S410	EVQ21405R	SW, CD	
S411	EVQ21405R	SW, POWER ON/OFF	
S412	RSH1A012-U	SW, CD LEAF SW	
S413	RSH1A012-U	SW, CD LEAF SW	
S501	RJJ1SE01-H	JACK W/SW (J501)	⚠
S701	SSHD5-E	SW,REST	
		JACK(S)	
J302	RJJ1D25ZA-C	JACK, MIXING MIC	
J303	RJJD7S2YA-C	JACK, H.P	
J501	RJJ1SE01-H	JACK, AC IN	⚠
		CONNECTOR	
CN1	RJS6T5ZA	CONNECTOR	
CN302	RJS10T7ZA	CONNECTOR	
CN303	RJS8T7ZA	CONNECTOR	
CN304	RJS11T7ZA	CONNECTOR	
CP301	RJP7G17ZA	CONNECTOR (7P)	
CP305	RJP3G9YA	CONNECTOR (3P)	
CP306	RJP6G9YA	CONNECTOR (6P)	
CP501	RJP2G9YA	CONNECTOR (2P)	
CP701	RJP2G17ZA	PLUG	
CP702	RJP2G17ZA	PLUG	
CP703	RJP4G17ZA	PLUG	
CS701	RJU035T016-1	CONNECTOR	
CS702	RJS1A6823	CONNECTOR	
		TRIMMER	
CT2	ECRLA030E53R	TRIMMER CAPACITOR	
CT3	ECRLA020E53R	TRIMMER CAPACITOR	
		ACCESSORIES	
A1	RQT1448-G	INSTRUCTION MANUAL	[M] (EB,EG)
A1	RFKSXDS101E	INSTR. MANUAL ASS'Y	[M] (E)
A1	RQT1451-L	INSTRUCTION MANUAL	[M] (GN)
A2	RJA0019-U	AC POWER CORD	[M](E,EG) ⚠

Ref No.	Part No.	Part Name & Description	Remarks
IC301	AN7317	I.C, REC/PLAY AMP	[M]
IC302	BU4066B	I.C, ANALOG SW	
IC303	BU4066B	I.C, ANALOG SW	
IC304	S81250PG-T	I.C, REGULATOR	[M]
IC305	BA3920	I.C, REGULATOR	
IC306	AN7134N-R	I.C, POWER AMP	
IC401	M37410M6H220	I.C, MICRO COMPUTER	[M]
IC402	S8054HN-T	I.C, RESET	
IC701	AN8800SCE2	I.C, SERVO AMP	
IC702	TCA0372DM2R	I.C, SPLINDLE M.DRIVE	
IC703	AN8377N	I.C, TRAVERSE M.DRIVE	
IC704	MN6650	I.C, DIGITAL SERVO PRO.	
IC705	MN6475	I.C, DIGITAL FILTER	
IC706	MN6626	I.C, DIGITAL SIGNAL PRO.	
		IC PROTECTOR	
ICP302	SRUN5T	IC PROTECTOR N5	⚠
ICP303	SRUN20T	IC PROTECTOR N20	⚠
ICP304	SRUN5T	IC PROTECTOR N5	⚠
ICP305	SRUN5T	IC PROTECTOR N5	⚠
ICP401	SRUN5T	IC PROTECTOR N5	⚠
		TRANSISTOR(S)	
Q 1	2SC829BTA	TRANSISTOR	
Q110	2SC1684HSTA	TRANSISTOR	[M]
Q111	2SC1684HSTA	TRANSISTOR	[M]
Q112	2SC2001L1TA	TRANSISTOR	
Q113	2SC1684HRTA	TRANSISTOR	
Q210	2SC1684HSTA	TRANSISTOR	[M]
Q211	2SC1684HSTA	TRANSISTOR	[M]
Q212	2SC2001L1TA	TRANSISTOR	
Q213	2SC1684HRTA	TRANSISTOR	
Q301	2SC2001L1TA	TRANSISTOR	
Q302	2SC1684STA	TRANSISTOR	
Q303	2SC1685RTA	TRANSISTOR	[M]
Q304	2SC1685RTA	TRANSISTOR	[M]
Q306	2SC1684HRTA	TRANSISTOR	
Q311	RVTDTA144EST	TRANSISTOR	
Q312	RVTDTC114EST	TRANSISTOR	
Q313	2SC2001L1TA	TRANSISTOR	
Q314	2SB1185E	TRANSISTOR	
Q315	2SC2785FTA	TRANSISTOR	
Q316	2SA564RTA	TRANSISTOR	
Q317	2SC1684RTA	TRANSISTOR	
Q401	RVTDTC144EST	TRANSISTOR	

Ref No.	Part No.	Part Name & Description	Remarks
Q402	RVTDTC144EST	TRANSISTOR	
Q403	RVTDTC144EST	TRANSISTOR	
Q701	2SB709S	TRANSISTOR	
		DIODE(S)	
D 1	RVD1SS133TA	DIODE	
D301	RVD1SS133TA	DIODE	
D302	RVDMTZ18BTA	DIODE	[M]
D306	RVDMTZ4R7BTA	DIODE	
D307	RVD1SS133TA	DIODE	
D309	RVDMTZ6R8BTA	DIODE	
D310	RVDMTZ11BTA	DIODE	
D311	RVD1SS133TA	DIODE	
D312	RVD1SS133TA	DIODE	
D313	RVDMTZ6R8BTA	DIODE	
D401	RVD1SS133TA	DIODE	
D402	RVD1SS133TA	DIODE	
D403	RVDMTZ6R2BTA	DIODE	
D404	RVD1SS133TA	DIODE	
D501	1N5402BM21	DIODE	
D502	1N5402BM21	DIODE	
D503	1N5402BM21	DIODE	
D504	1N5402BM21	DIODE	
D701	MA110TW	DIODE	
		VARIABLE RESISTOR(S)	
VR 1	RVNCA14B1T-A	V.R, MPX ADJ	[M]
VR301	EWAGQ6C14G54	V.R, TONE VOLUME	[M]
VR302	EWAGS6C14C54	V.R, XBS VOLUME	[M]
VR303	EWCT5AF20B54	V.R, MAIN VOLUME	[M]
VR701	EVNDXAA00B14	VR, BEST EYE ADJ.	
		COMPONENT COMBINATION(S)	
Z401	RSL5064-L	LCD	[M]
		VARIABLE CAPACITOR(S)	
VC1	RCV4RC2V2K-M	VARIABLE CAPACITOR	
		COIL(S)	
L 2	RLQY30S1W	COIL	[M]
L 4	RLD4Y53W	COIL	[M]
L 5	RLD4Y53W	COIL, ANT	[M] (E,EB,GN)

RESISTORS & CAPACITOR

Notes:
- * Capacitance values are in microfarads(μF) unless specified otherwise,P=Pico-farads(pF) F=Farads(F)
- * Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM), 1M=1,000K(OHM)
- * Bracketed indications in Ref.No. columns specify the area (Refer to the first page for area). Parts without these indication can be used for all areas.

Ref.No.	Part No.	Values & Remarks
	RESISTOR(S)	
R 1	ERDS2TJ330T	33 1/4W
R 2	ERDS2TJ101T	100 1/4W
R 3	ERDS2TJ8R2T	8.2 1/4W
R 4	ERDS2TJ334T	330K 1/4W
R 5	ERDS2TJ471T	470 1/4W
R 6	ERDS2TJ221T	220 1/4W
R 7	ERDS2TJ470T	47 1/4W
R 8	ERDS2TJ332T	3.3K 1/4W
R 9	ERDS2TJ153T	15K 1/4W
R 10	ERDS2TJ562T	5.6K 1/4W
R 11	ERDS2TJ562T	5.6K 1/4W
R 12	ERDS2TJ821T	820 1/4W
R 13	ERDS2TJ821T	820 1/4W
R 14	ERDS2TJ822T	8.2K 1/4W
R 15	ERDS2TJ102T	1K 1/4W
R 16	ERDS2TJ680T	68 1/4W
R 17	ERDS2TJ272T	2.7K 1/4W
R 18	ERDS2TJ563T	56K 1/4W
R 19	ERDS2TJ680T	68 1/4W
R 20	ERDS2TJ222T	2.2K 1/4W
R 22	ERDS2TJ151T	150 1/4W
R101	ERDS2TJ560T	56 1/4W
R102	ERDS2TJ472T	4.7K 1/4W
R103	ERDS2TJ123T	12K 1/4W
R104	ERDS2TJ104T	100K 1/4W
R105	ERDS2TJ822T	8.2K 1/4W
R106	ERDS2TJ333T	33K 1/4W
R107	ERDS2TJ104T	100K 1/4W
R108	ERDS2TJ183T	18K 1/4W
R109	ERDS2TJ273T	27K 1/4W
R110	ERDS2TJ153T	15K 1/4W
R111	ERDS2TJ823T	82K 1/4W
R113	ERDS2TJ823T	82K 1/4W
R114	ERDS2TJ822T	8.2K 1/4W
R115	ERDS2TJ473T	47K 1/4W
R116	ERDS2TJ8R2T	8.2 1/4W
R118	ERDS2TJ221T	220 1/4W
R119	ERDS2TJ224T	220K 1/4W

Ref.No.	Part No.	Values & Remarks
R120	ERDS2TJ151T	150 1/4W
R150	ERDS2TJ105T	1M 1/4W
R151	ERDS2TJ562T	5.6K 1/4W
R152	ERDS2TJ103T	10K 1/4W
R153	ERDS2TJ152T	1.5K 1/4W
R154	ERDS2TJ103T	10K 1/4W
R155	ERDS2TJ391T	390 1/4W
R156	ERDS2TJ104T	100K 1/4W
R157	ERDS2TJ682T	6.8K 1/4W
R158	ERDS2TJ472T	4.7K 1/4W
R160	ERDS2TJ103T	10K 1/4W
R162	ERDS2TJ474T	470K 1/4W
R163	ERDS2TJ102T	1K 1/4W
R201	ERDS2TJ560T	56 1/4W
R202	ERDS2TJ472T	4.7K 1/4W
R203	ERDS2TJ123T	12K 1/4W
R204	ERDS2TJ104T	100K 1/4W
R205	ERDS2TJ822T	8.2K 1/4W
R206	ERDS2TJ333T	33K 1/4W
R207	ERDS2TJ104T	100K 1/4W
R208	ERDS2TJ183T	18K 1/4W
R209	ERDS2TJ273T	27K 1/4W
R210	ERDS2TJ153T	15K 1/4W
R211	ERDS2TJ823T	82K 1/4W
R213	ERDS2TJ823T	82K 1/4W
R214	ERDS2TJ822T	8.2K 1/4W
R215	ERDS2TJ473T	47K 1/4W
R216	ERDS2TJ8R2T	8.2 1/4W
R218	ERDS2TJ221T	220 1/4W
R219	ERDS2TJ224T	220K 1/4W
R220	ERDS2TJ151T	150 1/4W
R250	ERDS2TJ105T	1M 1/4W
R251	ERDS2TJ562T	5.6K 1/4W
R252	ERDS2TJ103T	10K 1/4W
R253	ERDS2TJ152T	1.5K 1/4W
R254	ERDS2TJ103T	10K 1/4W
R255	ERDS2TJ391T	390 1/4W
R256	ERDS2TJ104T	100K 1/4W
R257	ERDS2TJ682T	6.8K 1/4W
R258	ERDS2TJ472T	4.7K 1/4W
R260	ERDS2TJ103T	10K 1/4W

Ref.No.	Part No.	Values & Remarks
R262	ERDS2TJ474T	470K 1/4W
R263	ERDS2TJ102T	1K 1/4W
R301	ERDS2TJ101T	100 1/4W
R302	ERDS2TJ475T	4.7M 1/4W
R303	ERDS2TJ104T	100K 1/4W
R304	ERDS2TJ104T	100K 1/4W
R305	ERDS2TJ472T	4.7K 1/4W
R306	ERDS2TJ472T	4.7K 1/4W
R307	ERDS2TJ101T	100 1/4W
R308	ERDS2TJ4R7T	4.7 1/4W
R309	ERDS2TJ103T	10K 1/4W
R310	ERDS2TJ472T	4.7K 1/4W
R311	ERDS2TJ103T	10K 1/4W
R312	ERDS2TJ102T	1K 1/4W
R313	ERDS2TJ473T	47K 1/4W
R314	ERDS2TJ102T	1K 1/4W
R315	ERDS2TJ473T	47K 1/4W
R318	ERDS2TJ222T	2.2K 1/4W
R319	ERDS2TJ105T	1M 1/4W
R320	ERDS2TJ332T	3.3K 1/4W
R321	ERDS2TJ470T	47 1/4W
R327	ERDS2TJ101T	100 1/4W
R332	ERDS2TJ473T	47K 1/4W
R333	ERDS2TJ393T	39K 1/4W
R335	ERDS2TJ102T	1K 1/4W
R336	ERDS2TJ333T	33K 1/4W
R337	ERDS2TJ683T	68K 1/4W
R338	ERDS2TJ153T	15K 1/4W
R340	ERDS2TJ472T	4.7K 1/4W
R342	ERDS2TJ1R5T	1.5 1/4W
R344	ERDS2TJ472T	4.7K 1/4W
R345	ERDS2TJ101T	100 1/4W
R346	ERDS2TJ473T	47K 1/4W
R347	ERDS2TJ473T	47K 1/4W
R348	ERDS2TJ104T	100K 1/4W
R350	ERDS2TJ472T	4.7K 1/4W
R351	ERDS2TJ473T	47K 1/4W
R354	ERDS2TJ473T	47K 1/4W
R355	ERDS2TJ102T	1K 1/4W
R356	ERDS2TJ153T	15K 1/4W
R357	ERDS2TJ330T	33 1/4W

Ref
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Ref No.	Part No.	Part Name & Description	Remarks
A2	RJA86ZB-K	AC POWER CORD	[M] (EB) ⚠
A2	RJA0015-K	AC POWER CORD	[M] (GN) ⚠
		PACKING MATERIAL	
P1	RPG1168	GIFT BOX	[M]
P2	RPN0584	POLYFOAM	[M]
P3	RPH655ZA	MIRAMAT SHEET	[M]
		CHIP JUMPER	
RJ701	ERJ6GEY0R00V	1/10W 0	
RJ703-710	ERJ6GEY0R00V	1/10W 0	

Ref No.	Part No.	Part Name & Description	Remarks

Ref.No.	Part No.	Values & Remarks
C159	ECEA1HU2R2B	2.2 50V
C160	ECBT1H331KB5	330P 50V
C161	ECBT1H102KB5	0.001 50V
C201	ECBT1H102KB5	0.001 50V
C202	ECEA0JU101B	100 6.3V
C203	ECFR1C273MR	0.027 16V
C204	ECEA1CU100B	10 16V
C205	ECBT1H101KB5	100P 50V
C206	ECEA1CU100B	10 16V
C207	ECBT1H102KB5	0.001 50V
C208	ECBT1C152KR5	1500P 16V
C209	ECFR1C153KR	0.015 16V
C210	ECBT1H104ZF5	0.1 50V
C211	ECEA1HU2R2B	2.2 50V
C212	ECEA1AU101B	100 10V
C213	ECEA0JU101B	100 6.3V
C214	ECBT1H102KB5	0.001 50V
C216	ECQV1H224JZ3	0.22 50V
C217	ECEA1AU102B	1000 10V
C250	ECEA1HU010B	1 50V
C251	ECEA1HU010B	1 50V
C252	ECEA1HU010B	1 50V
C253	ECBT1C103MS5	0.01 16V
C254	ECEA1HUR22B	0.22 50V
C255	ECFR1C104MR	0.1 16V
C256	ECBT1H102KB5	0.001 50V
C257	ECEA1HU2R2B	2.2 50V
C258	ECBT1H102KB5	0.001 50V(E,EB,GN)
C258	ECBT1H680J5	68P 50V (EG)
C259	ECEA1HU2R2B	2.2 50V
C260	ECBT1H331KB5	330P 50V
C261	ECBT1H102KB5	0.001 50V
C301	ECEA1AU220B	22 10V
C302	ECEA1AU101B	100 10V
C303	ECFR1C473MR	0.047 16V
C304	ECEA1CU100B	10 16V
C305	ECEA1AU470B	47 10V
C306	ECEA1AU221B	220 10V
C307	ECBT1C332MR5	3300P 16V
C308	ECFR1C473MR	0.047 16V
C309	ECEA1HU010B	1 50V
C310	ECQP1103JZ	0.01 100V
C311	ECQV1H474JZ3	0.47 50V
C312	ECQP1561JZ	560P 100V
C313	ECBT1C103MS5	0.01 16V
C314	ECQP1102JZT	0.001 100V
C315	ECBT1C103MS5	0.01 16V

Ref.No.	Part No.	Values & Remarks
C316	ECFR1C223MR	0.022 16V
C317	ECFR1C683MR	0.068 16V
C318	ECBT1H102KB5	0.001 50V
C319	ECBT1H102KB5	0.001 50V
C320	ECEA1HU010B	1 50V
C323	ECEA1AU221B	220 10V
C324	ECEA0JU471B	470 6.3V
C325	ECEA1CU221B	220 16V
C326	ECBT1H102KB5	0.001 50V
C329	ECEA1HU0R1B	0.1 50V
C332	ECEA1EU4R7B	4.7 25V
C333	ECEA1EU4R7B	4.7 25V
C334	ECBT1H471KB5	470P 50V
C335	ECBT1H471KB5	470P 50V
C336	ECEA1CU101B	100 16V
C337	ECEA1EU101B	100 25V
C338	ECEA1CU471B	470 16V
C339	ECEA1AU101B	100 10V
C340	ECEA1AU470B	47 10V
C342	ECA1EM332EV	3300P 25V [M]
C343	ECEA1CU100B	10 16V
C344	ECEA1HU010B	1 50V
C345	ECBT1C103MS5	0.01 16V
C346	ECEA1AU330B	33 10V
C348	ECKR1H102KB5	0.001 50V
C380	ECEA1AU221B	220 10V
C401	ECBT1C103MS5	0.01 16V
C402	ECBT1H220JC5	22P 50V
C403	ECBT1H220JC5	22P 50V
C404	ECEA1HU010B	1 50V
C405	ECEA1CU100B	10 16V
C406	ECBT1H102KB5	0.001 50V
C407	ECBT1H330J5	33P 50V
C408	ECBT1C103NS5	0.01 16V
C409	ECBT1C103NS5	0.01 16V
C410	ECEA0JU221B	220 6.3V
C411	ECBT1H102KB5	0.001 50V
C412	ECBT1H102KB5	0.001 50V
C414	ECEA1AU471B	470 10V
C415	ECEA1AU220B	22 10V
C417	ECBT1H102KB5	0.001 50V (EG)
C418,419	ECCR1H680KC5	68P 50V (EG)
C501-504	ECQV1H683JZ3	0.068 50V
C701	ECEA0JKA220	22 6.3V
C702	ECEA0JKS470	47 6.3V
C703	ECEA0JKS101I	100 6.3V
C709	ECUV1C224KBM	0.22 16V

Ref.No.	Part No.	Values & Remarks
C710	ECUV1C104MBM	0.1 16V
C711	ECUV1E103MBN	0.01 25V
C713	ECEA1CSN4R7I	4.7 16V
C714	ECEA1HKS010	1 50V
C715	ECUV1H472KBN	4700P 50V
C716	ECUV1C473KBN	0.047 16V
C717	ECUV1H681KBN	680P 50V
C718	ECEA1AKS1011	100 10V
C719	ECUV1E103MBN	0.01 25V
C720	ECUV1E153MBN	0.015 25V
C721	ECUV1E103MBN	0.01 25V
C722	ECEA0JKS470	47 6.3V
C723	ECUV1C104MBM	0.1 16V
C724	ECUV1E333MBN	0.033 25V
C725	ECUV1E103MBN	0.01 25V
C726	ECUV1H471KBN	470P 50V
C727	ECEA0JKS470	47 6.3V
C728,729	ECUV1C104MBM	0.1 16V
C730	ECUV1C224KBM	0.22 16V
C731	ECEA0JKS331I	330 6.3V
C732	ECUV1H102MBN	1000P 50V
C733	ECEA0JKS101I	100 6.3V
C734	ECUV1E223MBN	0.022 25V
C735	ECUV1C224KBM	0.22 16V
C737	ECUV1C224KBM	0.22 16V
C738	ECEA0JKS101I	100 6.3V
C739	ECUV1E103MBN	0.01 25V
C740	ECUV1H472MBN	4700P 50V
C741	ECUV1C224KBM	0.22 16V
C742	ECUV1C104MBM	0.1 16V
C743	ECEA0JKS331I	330 6.3V
C744,745	ECUV1H102KBN	1000P 50V
C746	ECEA0JKS101I	100 6.3V
C747	ECUV1C104MBM	0.1 16V
C748	ECEA1HKS010	1 50V
C749	ECUV1E103MBN	0.01 25V
C750	ECUV1H050DCN	5P 50V
C751	ECUV1C224KBM	0.22 16V
C752	ECUV1C104MBM	0.1 16V
C753,754	ECEA1HKS010	1 50V
C755	ECUV1C104MBM	0.1 16V
C756,757	ECUV1H050DCN	5P 50V
C758	ECUV1C224KBM	0.22 16V
C763	ECUV1E103MBN	0.01 25V
C764	ECUV1H331KBN	330P 50V

Ref.No.	Part No.	Values & Remarks
R358	ERDS2TJ222T	2.2K 1/4W
R380	ERDS2TJ561T	560 1/4W
R401	ERDS2TJ153T	15K 1/4W
R402	ERDS2TJ822T	8.2K 1/4W
R403	ERDS2TJ562T	5.6K 1/4W
R404	ERDS2TJ392T	3.9K 1/4W
R405	ERDS2TJ272T	2.7K 1/4W
R406	ERDS2TJ222T	2.2K 1/4W
R407	ERDS2TJ152T	1.5K 1/4W
R408	ERDS2TJ153T	15K 1/4W
R409	ERDS2TJ473T	47K 1/4W
R410	ERDS2TJ473T	47K 1/4W
R411	ERDS2TJ473T	47K 1/4W
R412	ERDS2TJ102T	1K 1/4W
R413	ERDS2TJ681T	680 1/4W
R414	ERDS2TJ103T	10K 1/4W
R415	ERDS2TJ473T	47K 1/4W
R416	ERDS2TJ106T	10M 1/4W
R417	ERDS2TJ105T	1M 1/4W
R418	ERDS2TJ472T	4.7K 1/4W
R419	ERDS2TJ104T	100K 1/4W
R420	ERDS2TJ104T	100K 1/4W
R421	ERDS2TJ104T	100K 1/4W
R422	ERDS2TJ474T	470K 1/4W
R423	ERDS2TJ104T	100K 1/4W
R425	ERDS2TJ104T	100K 1/4W
R426	ERDS2TJ473T	47K 1/4W
R427	ERDS2TJ682T	6.8K 1/4W
R428	ERDS2TJ223T	22K 1/4W
R429	ERDS2TJ563T	56K 1/4W
R430	ERDS2TJ104T	100K 1/4W
R431	ERDS2TJ334T	330K 1/4W
R432	ERDS2TJ822T	8.2K 1/4W
R433	ERDS2TJ473T	47K 1/4W
R434	ERDS2TJ102T	1K 1/4W
R701	ERJ6GEYJ100	10 1/10W
R702	ERJ6GEYJ471V	470 1/10W
R703	ERJ6GEYJ102V	1K 1/10W
R704	ERJ6GEYJ103V	10K 1/10W
R706	ERJ6GEYJ473V	47K 1/10W
R707	ERJ6GEYJ222V	2.2K 1/10W
R708	ERJ6GEYJ683V	68K 1/10W
R709	ERJ6GEYJ122V	1.2K 1/10W
R710	ERJ6GEYJ182V	1.8K 1/10W
R711	ERJ6GEYJ473V	47K 1/10W
R712	ERJ6GEYJ471V	470 1/10W
R714	ERJ6GEYJ473V	47K 1/10W

Ref.No.	Part No.	Values & Remarks
R715	ERJ6GEYJ223V	22K 1/10W
R716	ERJ6GEYJ104V	100K 1/10W
R717	ERJ6GEYJ682V	6.8K 1/10W
R718	ERJ6GEYJ223V	22K 1/10W
R719	ERJ6GEYJ123V	12K 1/10W
R720	ERJ6GEYJ273V	27K 1/10W
R721	ERJ6GEYJ823	82K 1/10W
R722	ERJ6GEYJ102V	1K 1/10W
R723,724	ERJ6GEYJ104V	100K 1/10W
R725	ERJ6GEYJ471V	470 1/10W
R726	ERJ6GEYJ102V	1K 1/10W
R729,730	ERJ6GEYJ102V	1K 1/10W
R731	ERJ8GEYJ470V	47 1/8W
R732	ERJ6GEYJ562V	5.6K 1/10W
R733	ERJ6GEYJ332V	3.3K 1/10W
R734	ERJ6GEYJ562V	5.6K 1/10W
R735	ERJ6GEYJ222V	2.2K 1/10W
R736	ERJ6GEYJ682V	6.8K 1/10W
R737-739	ERJ6GEYJ562V	5.6K 1/10W
R741-743	ERJ6GEYJ102V	1K 1/10W
R744	ERJ6GEYJ393V	39K 1/10W
R745,746	ERJ6GEYJ102V	1K 1/10W
R747	ERJ6GEYJ473V	47K 1/10W
R748	ERJ8GEYJ180V	18 1/8W
	CAPACITORS	
C 3	ECBT1H470J5	47P 50V
C 4	ECBT1H100JC5	10P 50V
C 5	ECBT1H390J5	39P 50V
C 6	ECBT1H4R7KC5	4.7P 50V (E,EB,GN)
C 6	ECBT1H5R6KC5	5.6P 50V (EG)
C 9	ECBT1H180JC5	18P 50V (E,EB,GN)
C 9	ECBT1H200JC5	20P 50V (EG)
C 10	ECBT1H102KB5	0.001 50V
C 11	ECBT1H102KB5	0.001 50V
C 12	ECFR1C223MR	0.022 16V
C 13	ECBT1H4R7KC5	4.7P 50V
C 14	ECBT1H180JC5	18P 50V
C 15	ECBT1H470J5	47P 50V
C 16	ECBT1H150JC5	15P 50V (E,EB,GN)
C 16	ECBT1H180JC5	18P 50V (EG)
C 17	ECBT1H102KB5	0.001 50V
C 19	ECBT1H200JC5	20P 50V
C 21	ECBT1C103NS5	0.01 16V
C 22	ECQP2A221JZT	220P 100V
C 23	ECQP1361JZ	360P 100V

Ref.No.	Part No.	Values & Remarks
C 25	ECQP2A151JZT	150P 100V
C 26	ECBT1H102KB5	0.001 50V
C 27	ECFR1C223MR	0.022 16V
C 28	ECEA1HU2R2B	2.2 50V
C 29	ECFR1C223MR	0.022 16V
C 30	ECFR1C223MR	0.022 16V
C 31	ECBT1H331KB5	330P 50V
C 32	ECFR1C223MR	0.022 16V
C 33	ECEA0JU101B	100 6.3V
C 34	ECBT1C103MS5	0.01 16V
C 35	ECFR1C223MR	0.022 16V
C 36	ECBT1C103MS5	0.01 16V
C 37	ECEA1HU010B	1 50V
C 38	ECEA1CU100B	10 16V
C 39	ECEA0JU101B	100 6.3V
C 40	ECBT1C103MS5	0.01 16V
C 41	ECQP1H102JZ3	0.001 50V [M]
C 42	ECEA1HUR47B	0.47 50V
C 43	ECEA1HUR47B	0.47 50V
C 44	ECEA1HU2R2B	2.2 50V
C 45	ECBT1H102KB5	0.001 50V
C101	ECBT1H102KB5	0.001 50V
C102	ECEA0JU101B	100 6.3V
C103	ECFR1C273MR	0.027 16V
C104	ECEA1CU100B	10 16V
C105	ECBT1H101KB5	100P 50V
C106	ECEA1CU100B	10 16V
C107	ECBT1H102KB5	0.001 50V
C108	ECBT1C152KR5	1500P 16V
C109	ECFR1C153KR	0.015 16V
C110	ECBT1H104ZF5	0.1 50V
C111	ECEA1HU2R2B	2.2 50V
C112	ECEA1AU101B	100 10V
C113	ECEA0JU101B	100 6.3V
C114	ECBT1H102KB5	0.001 50V
C116	ECQV1H224JZ3	0.22 50V
C117	ECEA1AU102B	1000 10V
C150	ECEA1HU010B	1 50V
C151	ECEA1HU010B	1 50V
C152	ECEA1HU010B	1 50V
C153	ECBT1C103MS5	0.01 16V
C154	ECEA1HUR22B	0.22 50V
C155	ECFR1C104MR	0.1 16V
C156	ECBT1H102KB5	0.001 50V
C157	ECEA1HU2R2B	2.2 50V
C158	ECBT1H102KB5	0.001 50V(E,EB,GN)
C158	ECBT1H680J5	68P 50V (EG)

ORDER NO. MD9307115S0
A6

Service Manual

Supplement

Portable Stereo CD System

COMPACT disc DIGITAL AUDIO

MASH*
multi-stage noise shaping

Radio Cassette

RX-DS101

Colour

(K) ... Black Type

Area

Suffix for Model No.	Area	Colour
(PC)	Canada	(K)
(E)	Europe	
(EB)	Great Britain	
(EG)	Germany / Italy	
(EP)	Poland	
(GC)	Asia, Latin America, Middle Near East and Africa	
(GN)	Oceania	

- Please file and use this Supplement Manual together with the Service Manual for Model No. RX-DS101 PC Order No. MD9203007C1

Model No.	Order No.
RX-DS101 PC	MD9203007C1
RX-DS101 E/EB/EG/GN	MD9205019C8
RX-DS101 EP	MD9302013A2
RX-DS101 GC	MD9207063C3

- This supplement is intended to provide additional information or corrections to the existing service manual for model No. RX-DS101. Be sure to update your service manual for future reference.
- The cassette mechanism unit in Model RX-DS101 has been modified during mid-production for improved operation.
  Major change of old mechanism to modified mechanism :

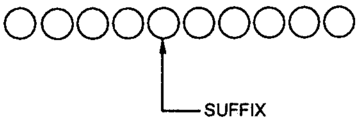
  R/P HEAD ⇨ AZTEC HEAD.

  AZTEC HEAD : R/P Head with self alignment capability of azimuth.

■ How to identify the unit with a modified mechanism ?

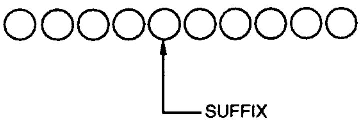
1. The unit with a modified mechanism can be identified by their serial number suffix label affixed on the rear side of the unit.
   A serial number consists of 10 aphanumeric characters.
   A unit with a modified mechanism has a 'D' onward suffix number for PC/E/EB/EG/GN area, 'C' onward suffix number for EP area and 'E' onward suffix number for GC area.

eg. For PC/E/EB/EG/GN area



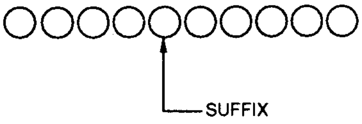
DU1EⒸ23456 (Old mechanism)
⇩
DU1EⒹ23456 (Modified mechanism)

For EP area



DU1EⒷ23456 (Old mechanism)
⇩
DU1EⒸ23456 (Modified mechanism)

For GC area



DU1EⒹ23456 (Old mechanism)
⇩
DU1EⒺ23456 (Modified mechanism)

• This Service Manual Supplement is strictly used for unit with a modified mechanism.

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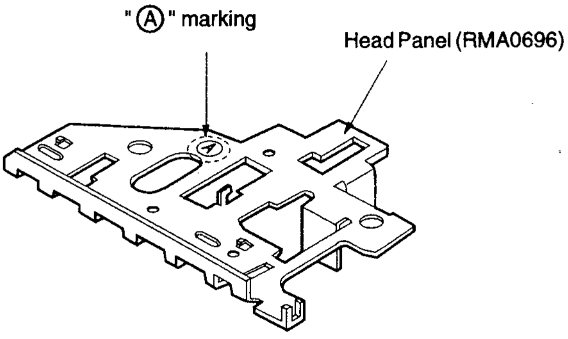
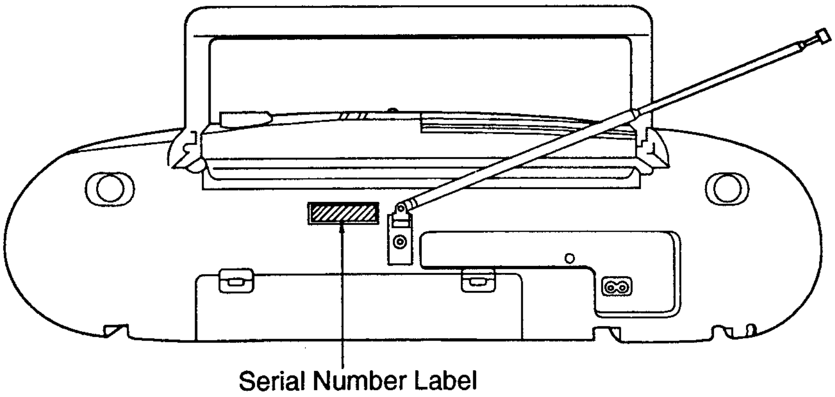
2. The unit with a modified mechanism can also be identified by a Ⓐmarking on the Head panel (Part no. : RMA0696) of the cassette mechanism.


"Ⓐ" marking
Head Panel (RMA0696)

■ Location of Serial Number Label


Serial Number Label

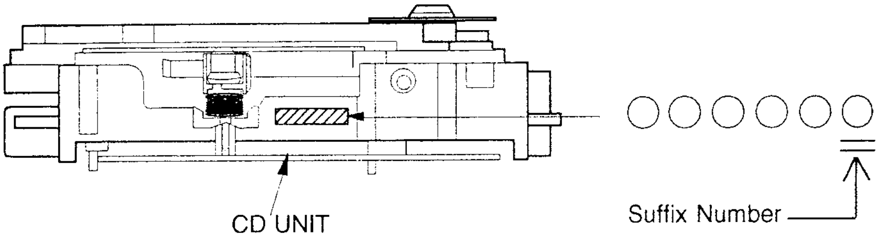
■ MEASUREMENTS AND ADJUSTMENTS

Due to self-aligned azimuth capability of Aztec Head, it is not neccessary to perform the Head azimuth Alignment when the modified mechanism is used.

⚠ WARNING
This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this sevice information by anyone else could result in serious injury or death.

How to identify the CD Units with discontinuation of Best-Eye Alignment

The CD Units with discontinuation of Best-Eye Alignment can be identified by the Suffix label printed at the location indicated below.
A CD Unit with discontinuation of Best-Eye Alignment has "B" onwards suffix number printed at each CD Unit number.



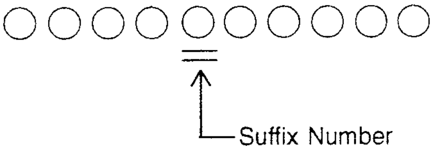
Example:

2 4 5 8 C A

⇩

3 6 1 5 E B

In addition, the suffix in the Serial Number located **at the rear** of the Main unit is changed from A to B onwards as shown below.



Example:

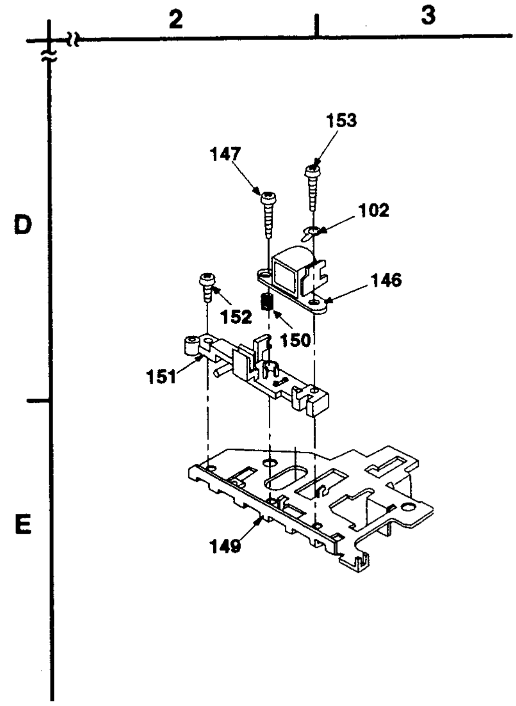
B R 1 H A 2 3 4 5 6

⇩

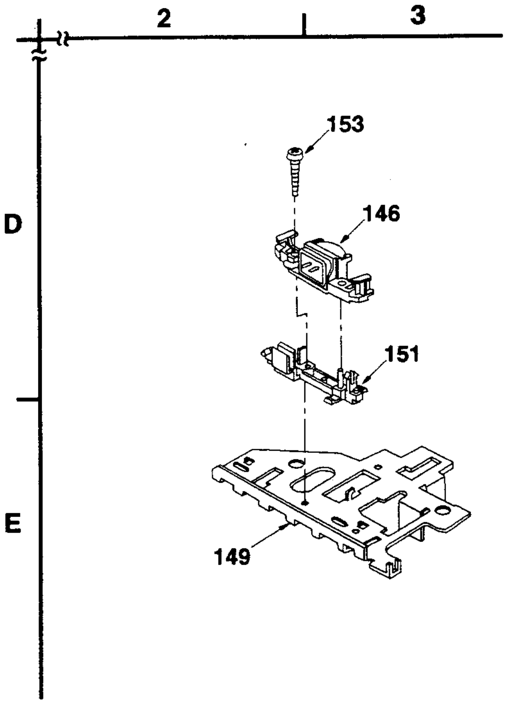
D R 3 H B 1 7 2 0 2

For P, GC area
C → D
For PC, E, EB, EG, GN area
B → C
For EP area
B → C

■ MECHANISM PARTS LOCATION



RX-DS101 (ORIGINAL)



RX-DS101 (SUPPLEMENT)

■ PARTS COMPARISON TABLE

Notes : [M] Indicates parts that are supplied by **MESA.**

Ref. No.	Description	Change of Parts Number		Remarks
		Original ➡	**Supplement**	
MECHANISM PARTS LIST				
102	TERMINAL [M]	RJR0033	————	(Deleted)
146	R/P HEAD [M]	RJH4C29MZAS	RBR4CY016-M	(Changed)
147	SCREW [M]	RHD20003	————	(Deleted)
149	HEAD PANEL [M]	RMA0107	RMA0696	(Changed)
150	SPRING [M]	RMB0059	————	(Deleted)
151	HEAD BASE [M]	RMR0159	RMQ0383	(Changed)
152	SCREW	XTN2+4F	————	(Deleted)
153	SCREW [M]	XTN2+8F	XTN2+12F	(Changed)
RESISTOR & CAPACITOR				
C101, C201	CAPACITOR 1500P 16V	ECBT1H102KB5	ECBT1C152KR5	(Changed)

MESA Printed in Singapore
P930816000P

ORDER NO. MD[illegible]03014S0
A6

Service Manual

Supplement 1

COMPACT disc DIGITAL AUDIO

MASH*
multi-stage noise shaping

Radio Cassette

RX-DS101

Colour

(K) . . . Black Type

Area

Suffix for Model No.	Area	Colour
(P)	U.S.A.	(K)
(PC)	Canada	
(E)	Continental Europe	
(EB)	Great Britain	
(EG)	F.R Germany/Italy	
(EP)	Poland	
(GN)	Oceania	
(GC)	Third Region	

- Please file and use this Supplement Manual together with the Service Manual for Model No.
  RX-DS101 P, PC-K ------------------------------------MD9203007C1 (Original)
  RX-DS101 E, EB, EG, GN-K------------------------MD9205019C8 (Original)
  RX-DS101 EP-K -------------------------------------MD9302013A2 (Simplified)
  RX-DS101 GC-K --------------------------------------MD9207063C3 (Original)
  RX-DS101 P, PC, E, EB, EG, GC, GN ------MD9306039S0 (Supplement)
  RX-DS101 PC, E, EB, EG, EP, GC, GN ----MD9307115S0 (Supplement)

Note

- This Supplement 1 Service Manual is intended to provide additional information for CD circuit change, and indicated main difference between Supplement MD9306039S0 for all area and MD9207063C3 for EP area.
  Be sure to update your Service Manual for future reference.

- The IC Servo Processor IC702 (Part Number: MN66271RA) has been improved to include Automatic Adjustment of the Best Eye (Photo Detector Balance), therefore manual adjustment of the Best-Eye through VR701 is not necessary anymore.
- This supplement highlight the following changes along with the deletion of VR701.

1. VR701 at Servo Circuit has been deleted.
2. Best-Eye Adjustment procedure has been deleted from "Measurement and Adjustment".
3. Some Components from the Servo Circuit have been changed, deleted or added.
4. New Suffix number has been allocated for easy identification of new CD drive with deletion of VR701.
5. Automatic Best-Eye Adjustment has been added to "Flow Chart on automatic sequence".

■ CHANGE IN REPLACEMENT PARTS LIST

Ref. No.	Change of Parts Number		Description	Remarks
	Original ➡	Supplement 1		
VARIABLE RESISTOR				
VR701	EVNDXAA00B14	————	VR, Best Eye Adjustment	Deleted
RESISTORS				
R708	ERJ6GEYJ224V	ERJ6GEYJ104V	1/10W 100KΩ	Changed
R746	ERJ8GEYJ103V	————	1/8W 10KΩ	Deleted
R747	ERJ6GEYJ473V	————	1/10W 47KΩ	Deleted
CHIP JUMPERS				
RJ705	ERJ8GEY0R00A	————	Chip Jumper	Deleted
RJ706	ERJ8GEY0R00A	————	Chip Jumper	Deleted
RJ722	ERJ8GEY0R00A	————	Chip Jumper	Deleted
CAPACITOR				
C748	ECUV1H271KBM	ECUV1H471KBN	470pF 50V	Changed
INTEGRATED CIRCUIT				
IC702	MN66271 or MN66271RA	MN66271RA	I.C, SERVO PROCESSOR	Changed

- The new IC Servo Processor MN66271RA can be used for both sets with VR701 and sets without VR701.
- The new Servo P.C.B. Assembly with deletion of VR701 has part number **(REP 1391A-1N).**
- During earlier production, there were sets with MN66271RA used and VR701 still existing.
  [In this case, please note that the Servo P.C.B. Assembly used being **(REP 1391A-N)**, manual Best-eye adjustment is still necessary.]

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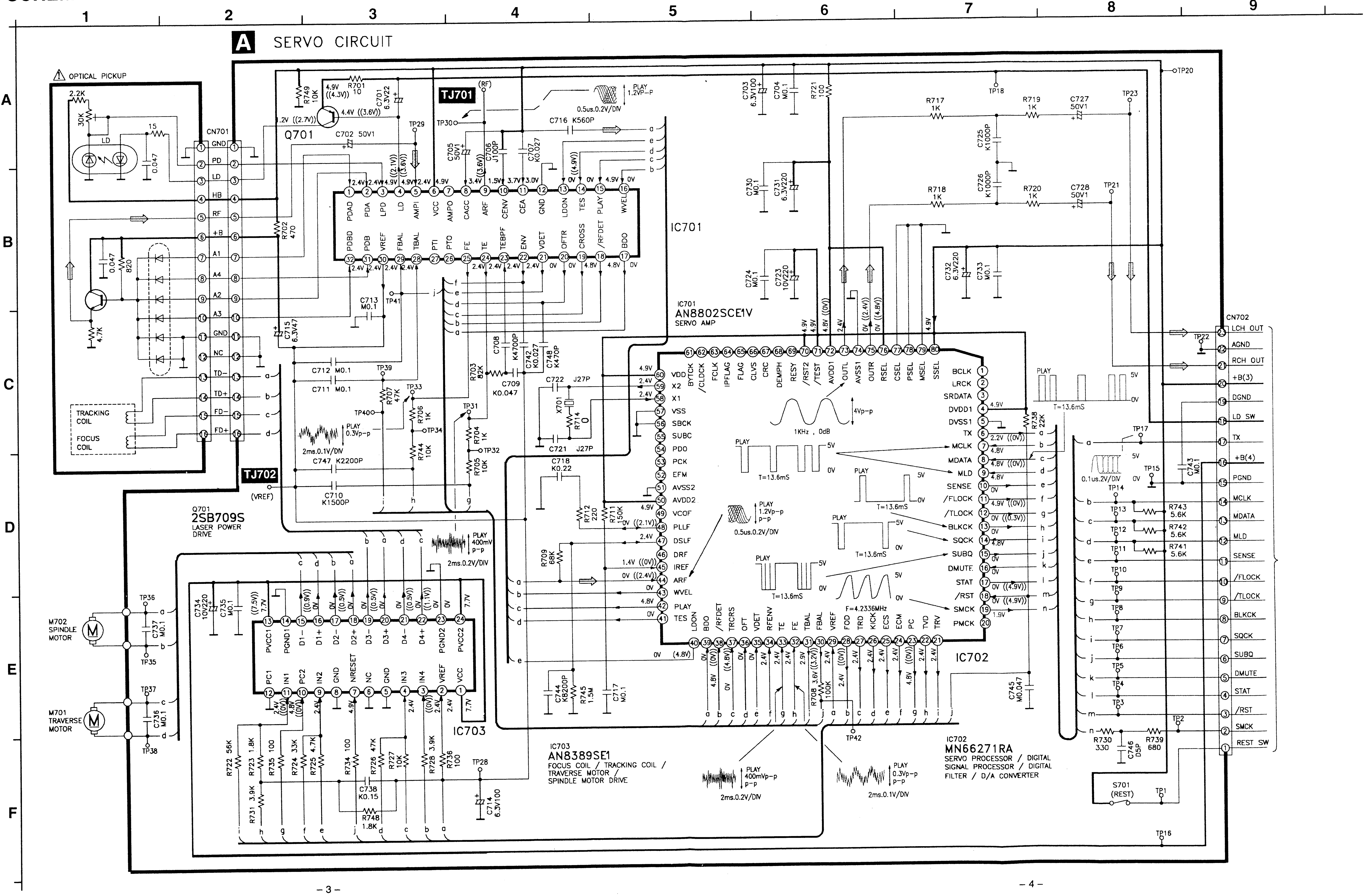
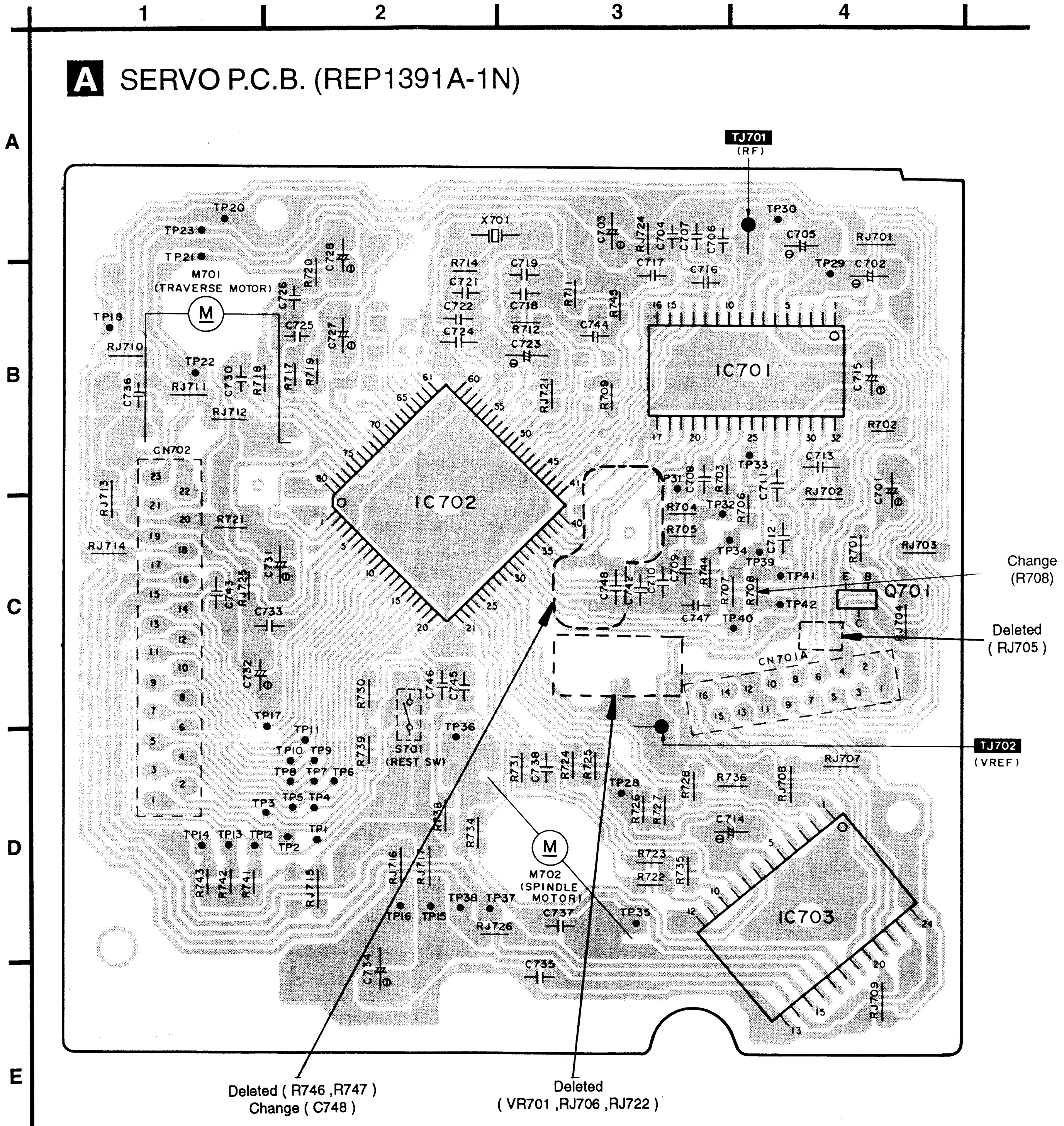
■ SCHEMATIC DIAGRAM


A SERVO CIRCUIT
OPTICAL PICKUP
CN701
GND
PD
LD
HB
RF
+B
A1
A4
A2
A3
NC
TD-
TD+
FD-
FD+
TRACKING COIL
FOCUS COIL
Q701
2SB709S
LASER POWER DRIVE
TJ701
TJ702
(VREF)
IC701
AN8802SCE1V
SERVO AMP
PDAD
PDA
LPD
LD
AMPI
VCC
AMPO
CAGC
ARF
CENV
CEA
GND
LDON
TES
PLAY
WVEL
PDBD
PDB
VREF
FBAL
TBAL
PTI
PTO
FE
TE
TEBPF
ENV
VDET
OFTR
CROSS
/RFDET
BDO
IC702
MN66271RA
SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR / DIGITAL FILTER / D/A CONVERTER
VDD
X2
X1
VSS
SBCK
SUBC
PDO
PCK
EFM
AVSS2
AVDD2
VCOF
PLLF
DSLF
DRF
IREF
ARF
WVEL
PLAY
TES
BYTCK
/CLDCK
FCLK
IPFLAG
FLAG
CLVS
CRC
DEMPH
RESY
/RST2
/TEST
AVDD1
OUTL
AVSS1
OUTR
RSEL
CSEL
PSEL
MSEL
SSEL
BCLK
LRCK
SRDATA
DVDD1
DVSS1
TX
SENSE
MCLK
MDATA
MLD
/FLOCK
/TLOCK
BLKCK
SQCK
SUBQ
DMUTE
STAT
/RST
SMCK
PMCK
LDON
BDO
/RFDET
TRCRS
OFT
VDET
RFENV
TE
FE
TBAL
FBAL
VREF
FOD
TRD
KICK
ECS
ECM
PC
TVD
TRV
IC703
AN8389SE1
FOCUS COIL / TRACKING COIL / TRAVERSE MOTOR / SPINDLE MOTOR DRIVE
PVCC1
PGND1
D1-
D1+
D2-
D2+
D3-
D3+
D4-
D4+
PGND2
PVCC2
PC1
IN1
PC2
IN2
GND
NRESET
NC
GND
IN3
IN4
VREF
VCC
M702 SPINDLE MOTOR
M701 TRAVERSE MOTOR
CN702
LCH OUT
AGND
RCH OUT
+B(3)
DGND
LD SW
TX
+B(4)
PGND
MCLK
MDATA
MLD
SENSE
/FLOCK
/TLOCK
BLKCK
SQCK
SUBQ
DMUTE
STAT
/RST
SMCK
REST SW
S701 (REST)
X701
PLAY 1.2Vp-p 0.5us.0.2V/DIV
PLAY 0.3Vp-p 2ms.0.1V/DIV
PLAY 400mV p-p 2ms.0.2V/DIV
1KHz, 0dB 4Vp-p
T=13.6mS
F=4.2336MHz
0.1us.2V/DIV
PLAY 400mVp-p 2ms.0.2V/DIV
PLAY 0.3Vp-p 2ms.0.1V/DIV
R701 10
R702 470
R749 10K
C701 6.3V22
C702 50V1
C705 50V1
C706 J100P
C707 K0.027
C716 K560P
C703 6.3V100
C704 M0.1
R721 100
R717 1K
R718 1K
R719 1K
R720 1K
C725 K1000P
C726 K1000P
C727 50V1
C728 50V1
C730 M0.1
C731 6.3V220
C724 M0.1
C723 10V220
C732 6.3V220
C733 M0.1
C713 M0.1
C715 6.3V47
C712 M0.1
C711 M0.1
R707 47K
R706 1K
R744 10K
R704 1K
R705 10K
R703 82K
C708 K4700P
C742 K0.027
C748 K470P
C709 K0.047
C722 J27P
C721 J27P
R714 0
C747 K2200P
C710 K1500P
C718 K0.22
R712 220
R711 150K
R709 68K
C744 K8200P
R745 1.5M
C717 M0.1
R738 22K
C743 M0.1
R743 5.6K
R742 5.6K
R741 5.6K
C745 M0.047
R708 100K
R730 330
C746 DSP
R739 680
C734 10V220
C735 M0.1
C737 M0.1
C736 M0.1
R722 56K
R723 1.8K
R735 100
R724 33K
R725 4.7K
R734 100
R726 47K
R727 10K
R728 3.9K
R736 100
R731 3.9K
C738 K0.15
R748 1.8K
C714 6.3V100
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP13
TP14
TP15
TP16
TP17
TP18
TP20
TP21
TP22
TP23
TP28
TP29
TP30
TP31
TP32
TP33
TP34
TP35
TP36
TP37
TP38
TP39
TP40
TP41
TP42
2.2K
30K
15
0.047
820
4.7K

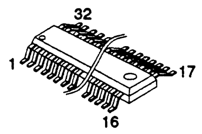
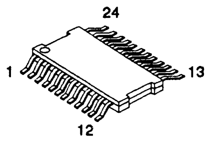
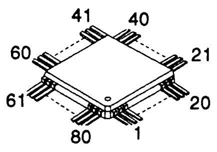
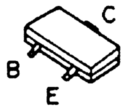
■ PRINTED CIRCUIT BOARD DIAGRAM

A SERVO P.C.B. (REP1391A-1N)


1
2
3
4
A
B
C
D
E
F
TJ701
(RF)
TP20
TP23
TP21
M701
(TRAVERSE MOTOR)
TP18
RJ710
TP22
RJ711
RJ712
CN702
X701
TP30
C705
RJ701
TP29
C702
IC701
IC702
IC703
Q701
R702
RJ702
RJ703
RJ707
RJ709
RJ713
RJ714
R721
S701
(REST SW)
M702
(SPINDLE MOTOR)
TP36
TP35
CN701A
Change
(R708)
Deleted
(RJ705)
TJ702
(VREF)
Deleted (R746 ,R747)
Change (C748)
Deleted
(VR701 ,RJ706 ,RJ722)

Note: This Servo PCB diagram is shown as viewed from the copper pattern side.

- Terminal Guide of IC's ,Transistors for Servo P.C.B.

AN8802SCE1V	AN8389SE1	MN66271RA	2SB709STW
			

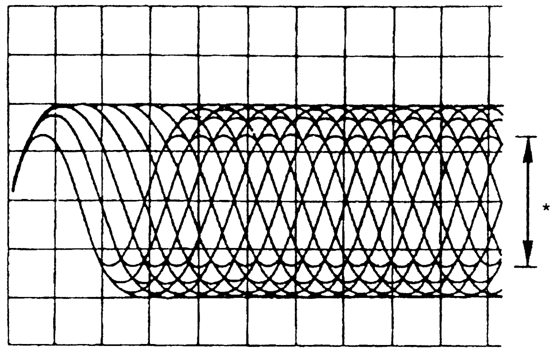
32
1
17
16
24
1
13
12
41
40
60
21
61
20
80
1
C
B
E

Deletion

■ MEASUREMENTS AND ADJUSTMENTS

(2) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TJ701** (+) and **TJ702** (VREF) (–) on the Servo P.C.B.
   Oscilloscope setting: VOLT..........................200mV
   SWEEP......................0.5µs.
   Input coupling...........AC.
2. Switch the player power ON, and play the 1 KHz (track 1) on the test disc (SZZP1054C).
3. Adjust VR701 until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.

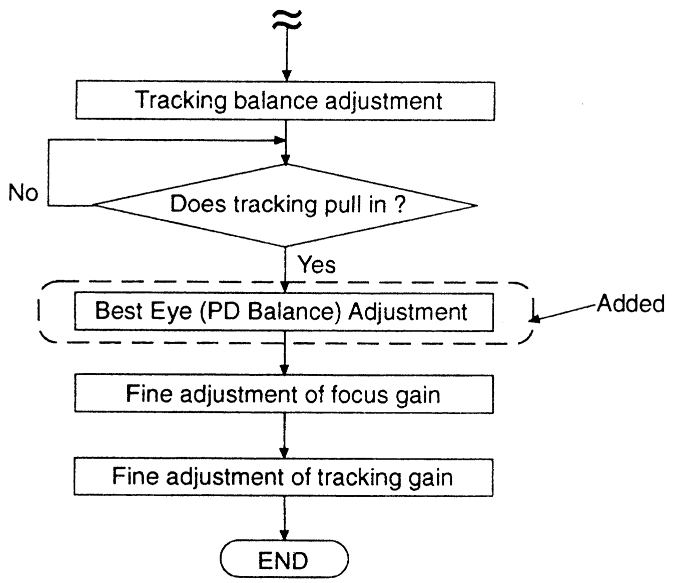


* Most stretched eye pattern

- Please ignore the above procedure for Best Eye Adjustment for sets with deletion of VR701 since Automatic Adjustment is implemented.

Addition

•Flow chart on automatic adjustment sequence


≈
Tracking balance adjustment
No
Does tracking pull in ?
Yes
Best Eye (PD Balance) Adjustment
Added
Fine adjustment of focus gain
Fine adjustment of tracking gain
END

*Automatic Adjustment of Best Eye (PD Balance) is added to the Automatic Adjustment Flow Chart